



Photometric Solutions International[®]
THE NEW GENERATION IN PHOTOMETRIC TECHNOLOGY



ASG-3.0

**Automotive and Signalling
Goniophotometer**

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ASG-3.0 Mid-range Automotive and Signalling Goniophotometer

The ASG-3.0 is a mid-range goniophotometer suitable for most automotive and signalling applications. It has the resolution required to perform automotive photometric tests to the ECE, SAE, JIS, and many other rules, as well as devices such as aeronautical and maritime beacons.



Goniometer

The Goniometer is a CIE Type A goniometer for conducting photometric measurement of Head Lamps, Signalling Lamps, Fog Lamps, etc. It can also be used in conjunction with other equipment for measurement of Reflex Reflectors, Advanced Warning Triangles, Retro-Reflective Tape, Licence Plates, etc.

The goniometer has two motorised movement axes: to tilt and rotate the test item to the required measurement angles (A , α). Other specifications include:

- Movement through horizontal angles $\pm 180^\circ$ with $\pm 0.01^\circ$ accuracy;
- Movement through vertical angles $\pm 100^\circ$ with $\pm 0.01^\circ$ accuracy over the critical range of angles;
- Capacity to take test item up to 50 kg up to 15° tilt;
- Capacity to take test item up to 20 kg up to 100° tilt;
- Controls are smooth, fast and oscillation free;
- Motorised Z linear axis;
- All the angular as well as linear movements are computer controlled. The operator can control the motion from the PC or using a dedicated remote hand-held controller;
- In-built laser for alignment purpose;
- Can measure the headlight stability test described in ECE regulations;
- Calibration certificate for angular measurements can be provided;
- Electrical power supply: single phase, voltage and frequency according to local conditions;
- Has safety against over-voltage, over-load, over-travel and wrong operator programming.



Photometer

The photometer consists of a photocell and a photocurrent preamplifier with built in measurement facility. The photocell is thermostatically controlled at

$35^\circ\text{C} \pm 0.1^\circ\text{C}$ and has a 25mm receptive area and a responsivity of around 150 nA/lx. It has a $V(\lambda)$ response with $f_1' < 1.5\%$, which is consistent with the CIE and IEC for measurement of LEDs and coloured signals.

The photocell is fed into a multi-ranging photocurrent preamplifier with built-in analogue-to-digital converter with an RS-485 communications port. This means that the actual measurement is performed near the photocell for greater noise immunity.



The photometer has an operating range from 10^{-6} lx to 5×10^3 lx. This means a resolution of better than 0.001 cd at a test distance of 25 metres. An ISO-17025 endorsed calibration certificate with traceability is provided with the system.

Digital or software triggering from the motor controller means that fast sampling of test scans can be achieved.

Test Distances

There are two standard test distances for automotive measurements: one for measurement of headlamps (25m) and one for signals and other devices (~3-10m).

We can provide either a single photometer system with a stand that can be moved from one test distance to the other, or two separate photometers permanently fixed at the two test distances. In the case of the latter, we use automated photocell stands which rise up when the photometer is being used and drop down when the photometer is not being used. When performing measurements of reflex reflectors both stands are lowered.

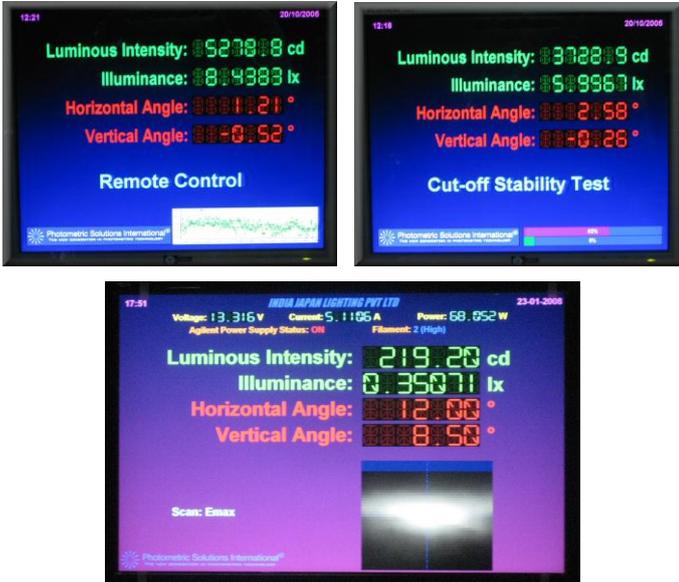
The photocell(s) used in the measurements are mounted on sturdy stands and are appropriately masked and baffled to avoid stray light.

Laboratory Room Preparation

We also provide advice on laboratory room preparation including the installation of stray light baffles such as curtains and panels; painting; equipment layout locations; placement of air conditioning systems; dust-proofing.

Secondary Monitor

The secondary display system consists of a flatscreen monitor in a panel mounted in a 19" rack or on the wall of the laboratory. The display shows both of the angular components, the candela measurement, the lux measurement and other important information.



This is very useful for seeing the luminous intensity or illuminance emitted by the test item when aligning them and it can be used to check glare points, hot spots, beam maximum intensity, etc. It also gives the laboratory a modern, professional feel.

Luminous Flux Attachment

An attachment can be provided for the measurement of absolute luminous flux of lamps and LEDs. The attachment is connected to the main system control cabinet and is attached to the mounting plate on the goniometer. This is useful for creating working standard lamps for use in the laboratory.

Test Item Alignment

One alignment laser is provided as standard, however up to three alignment lasers can be included:

- An inbuilt laser is provided which is coincident with the tilt axis;
- A second laser can be mounted on the 5 metre photocell stand (when automated photocell stands are used). This laser is aimed along the optic axis to the goniometer to hit the test item from the front;
- A third laser can be mounted on the side wall. This third laser is also coincident with the tilt axis, but aiming towards the goniometer from the other side. This simplifies the alignment process for test items with asymmetric, curved front surfaces.

Buttons on the hand-held controller are dedicated to rotating to +90° or -90° to simplify the aiming process.

Power Supplies

Either one or two power supplies can be included and interfaced to the PC. We normally use Agilent power supplies, which are very good quality and they have remote sensing facilities so the operator can select an operating parameter (current or voltage) in the software and the software will automatically apply power to the lamp(s) and compensate for any voltage drop in the power leads.

We also provide a filament switch for switching between filaments in a dual filament lamp. This can be computer-controlled or manual.

19" Rack and Control Cabinet

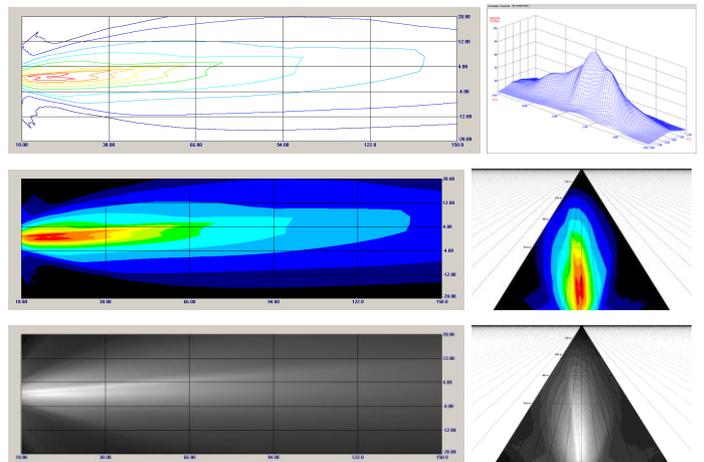
A control cabinet is included with the system. This is positioned near the goniometer and it houses the motor controller and other circuitry required to coordinate the motion and measurement. The control cabinet has an ON/OFF switch on the side, and contains interfaces for electrical power and communications with the PC and data acquisition systems.

A 19" rack system is also included, which houses the test item power supplies and the secondary monitor where required. This rack system gives the laboratory a professional feel and is ideal for demonstrating the system to onlookers and visitors.

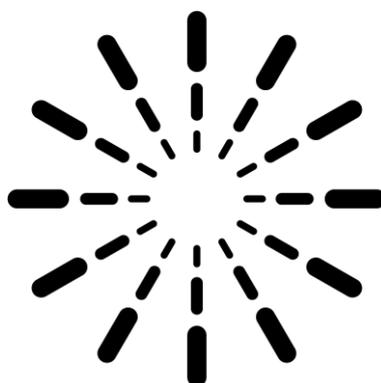
Software

The comprehensive software supplied with the ASG-3.0 Goniophotometer systems is in two parts: control software and report generation software.

The control software can test to ECE, SAE, FMVSS, JIS, ADR, IS and other Rules including auxiliary functions such as cutoff stability and LED flashing mode tests. The report generator provides several different formats of professional reports, ranging from single-page to tabulated output of test scan data.



Please contact one of our representatives or sales/applications engineers for more information.



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