



Part 1. SFM-1.0 Flash Photometer

We will supply a flash photometer system consisting of a photometer head; amplifier; DMM; software and accessories.

Photometer Head and Amplifier

The photometer head, model number Ph-St-B8-Th, is thermostatically controlled at 35 degrees Celsius and has an 8 mm receptive area and a responsivity of around 14 nA/lx. The photocell has a V (λ) response with $f_1' < 1.50\%$ (Class L), which is consistent with CIE recommendations for photocells for measurement of automotive and signalling devices, and is therefore suitable for LEDs and coloured signals.

The photocell is fed into a multi-ranging photocurrent amplifier, with built-in analogue-to-digital conversion, that is controlled by the PC. This can be used for accurate measurement of steady-state signals and slow flashes ($< \sim 1$ Hz).

The photocell and amplifier combination has a combined measurement resolution of around 10 microlux, which corresponds to around 1 millicandela (0.01 cd) at a test distance of 25 metres.



Figure 1: Photocell and amplifier

Keysight DMM

A Keysight (formerly Agilent) 34465A DMM is supplied and interfaced with the analogue output of the photocurrent amplifier and can measure the flashes at up to 50,000 samples per second.



Figure 2: Keysight 34465A DMM

The combination of photometer head, amplifier and DMM have a time response of around 0.2 ms (10 % - 90 % of full scale) on the least sensitive ranges.

Photometer Stand and Baffle Tube

The photometer head is mounted on a sturdy stand with adjustable height and a base that can be fixed to the floor. It is supplied with a 240 mm baffle tube. The baffle tube is custom-made: please specify the physical size of the measurement area and distance from the detector at time of order (default is a 1.0 metre diameter area at a distance of 15 metres). Please also specify the preferred height of the photometer head above floor level at time of order (default = 1.25 metres).



Figure 3: Photometer stand and baffle tube

Applications

The flash measurement system can be used for measurement of various transient luminous intensity functions such as:

- Lamp activation profile;
- PWM light source frequency;
- Flicker analysis;
- Indicator flashes;
- Rotating beacons and flashing emergency beacons;
- Aeronautical and maritime signals.

Calibration

The flash photometer comes with a calibration certificate for system illuminance responsivity using:

- Photometer head and amplifier;
- Photometer head, amplifier and DMM.

The responsivity is entered into the Config section of the software and can be updated by the user in future calibrations.

The user will need to measure the test distance from the reference plane of the photometer head to the reference plane of the device under test. This distance is also entered into the Config so that the software can calculate the luminous intensity, and from this the effective intensity.

Software

The software provided with the system is in two parts – the control software and the report generation software. The control software interfaces the amplifier and DMM and coordinates the measurement. The user can specify the following:

- Amplifier range (can also be automated);
- Sampling rate; and
- Acquisition time.

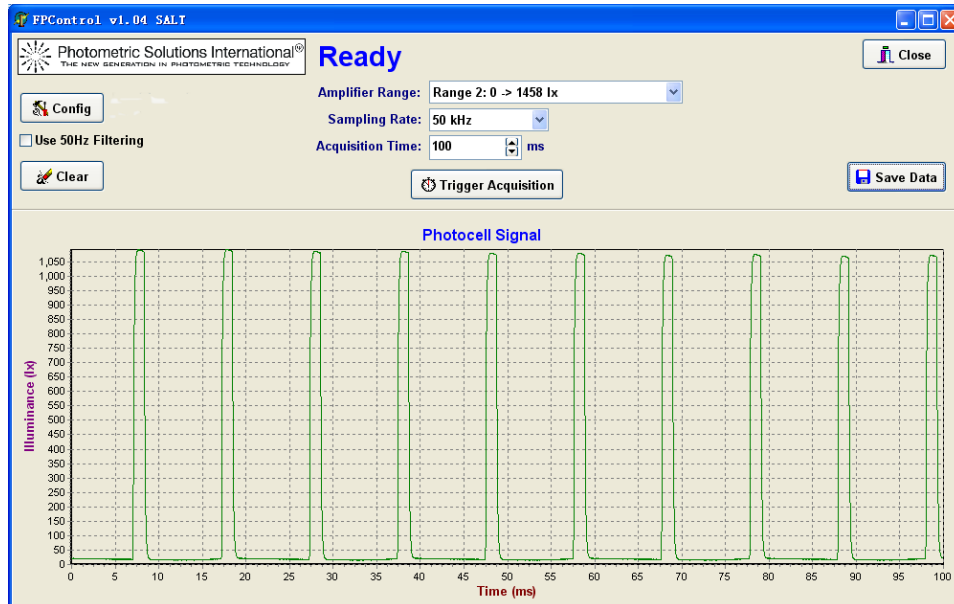


Figure 4: Flash photometer measurement window

The report generator plots the measured data and calculates functions such as shown in Figure 5 below.

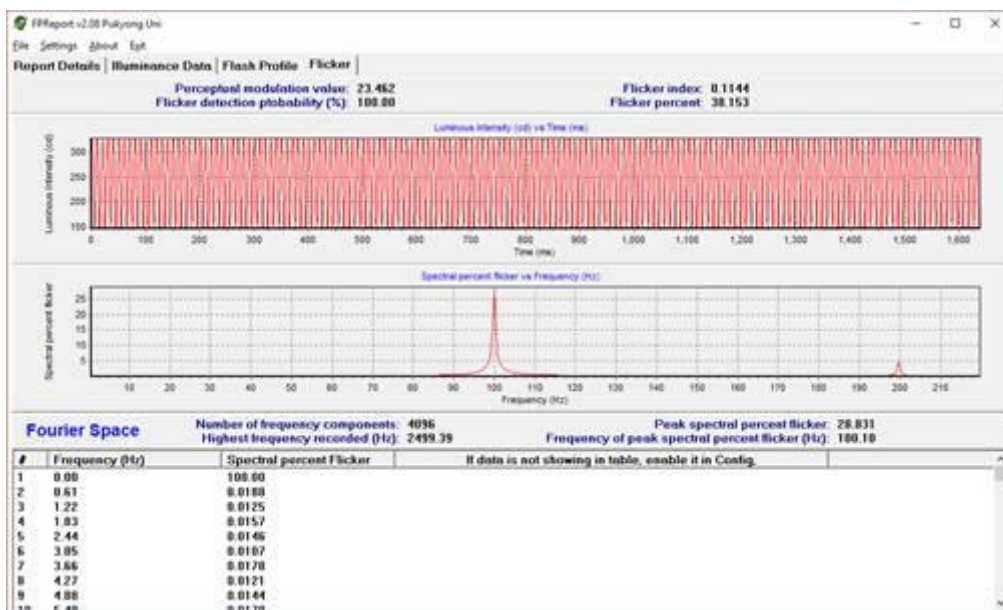


Figure 5: Flash Report Generator

Scope of Supply

This equipment includes the following:

- Photometer head;
- Amplifier;
- Agilent DMM;
- Signal cable;
- Communications cable (normally USB for short distances or Ethernet for long distances from the PC, please advise at time of order);
- Stand and baffle tube;
- Calibration certificate;
- Control and report software.

PC

The client is to provide a PC with specifications given by PSI.

Installation and Training

Installation and training is not included but it can be provided by special arrangement.

Documentation

The equipment and software provided comes with a User Manual (in English) which provides the procedures for measuring colour in easy to follow instructions. The manual also contains connection diagrams and troubleshooting guides to the various components of the system.

Warranty

PSI provides an unconditional warranty on all of the photometric equipment supplied for 12 months from the date of final acceptance, or according to the limitations of the warranty of the manufacturer of any individual component. During the warranty period, PSI will repair or replace any faulty equipment at no charge to the client. The client is responsible for fixing hardware failures in the PC system, however PSI will actively assist the client in determining the nature of and resolving any such problem that may occur.

This warranty does not cover misuse, abuse or accidental damage to the equipment. In such a case all repairs and travel and accommodation expenses will be borne by the Client. For warranty extension and annual maintenance contract details, please contact our representatives.