

# LP02-LI19

## Pyranometer with handheld read-out unit / datalogger

*LP02 is a solar radiation sensor that is applied in most common solar radiation observations. LP02 complies with the second class specifications of the ISO 9060 standard and the WMO Guide. LI19 is a high accuracy handheld read-out unit / datalogger. The LP02-LI19 combination is well suited for mobile measurements and short term datalogging.*



**Figure 1** LP02 pyranometer with LI19 handheld read-out unit / datalogger



**Figure 2** LP02-LI19 as it is delivered, in a practical transport case

### Introduction

LP02 is a solar radiation sensor that is applied in general observations. It measures the solar radiation received by a plane surface from a 180° field of view angle. This quantity, expressed in  $W/m^2$ , is called “hemispherical” solar radiation. LP02 pyranometer can be employed outdoors under the sun, as well as indoors with lamp-based solar simulators. Its orientation depends on the application and may be horizontal, tilted (for plane of array radiation) or inverted (for reflected radiation).

LI19 displays the measured radiation and stores measured data. Once programmed with the sensitivity of LP02, the display will show the actual value of the solar radiation in  $W/m^2$ . Programming LI19 is done through its PC user interface.

The system is supplied in a practical transport case, for easy transport and protection during field measurement campaigns. Also included are the necessary software, AA-type batteries and a USB cable. Fresh batteries allow for more than 50 days of operation.

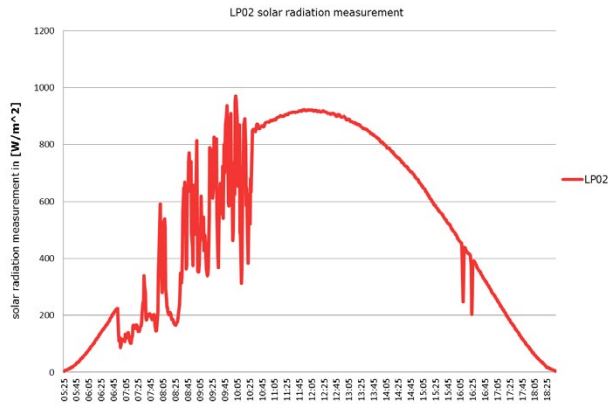
LI19 may also be used with other pyranometers and heat flux sensors.

### Operation

Operation of LP02-LI19 is easy. As LI19 has already been programmed at the factory, measurements can start by switching on the LI19. The storage interval is set by connecting the LI19 to a PC and using the LI19 user interface software.

### Suggested use

- short-term field measurement of solar radiation
- education in solar energy



**Figure 3** a graph generated using data stored on the LI19



**Figure 4** LP02-LI19 used in field measurement campaign

### Delivery

- LP02 pyranometer
- programmed LI19 with batteries
- 2 spare batteries (type AA)
- LI19 software
- transport case with space for sensors
- LP02 and LI19 product certificate
- strip with measurement unit markers
- USB cable

### Latest software

the latest software should be downloaded from <http://www.hukseflux.com/page/downloads>

### LP02 specifications

Measurand	hemispherical solar radiation
ISO classification	second class pyranometer
Calibration uncertainty	< 1.8 % (k = 2)
Calibration traceability	to WRR
Spectral range	285 to 3000 x 10 <sup>-9</sup> m
Sensitivity (nominal)	15 x 10 <sup>-6</sup> V/(W/m <sup>2</sup> )
Rated operating temperature range	-40 to +80 °C
Temperature response	< ± 3 % (-10 to +40 °C)
Standard cable length	5 m

### LI19 specifications

Output on display	solar radiation
Stored measurement Definition	minimum maximum and average over storage interval with conversion to W/m <sup>2</sup>
A/D conversion	16 bits
Temperature dependence	< 0.5 % + 3 x 10 <sup>-6</sup> V over rated range
Display refreshment rate	1 s <sup>-1</sup>
Battery type	2 x AA
Battery life	> 50 days (on fresh batteries)
Storage interval range	2 to 65535 s (selectable)
Storage capacity	3518 measurements
Rated operating temperature range	-10 to +40 °C

### See also

- [LP02](#) second class pyranometer
- [LI19](#) read-out unit / datalogger
- view our [product range of solar sensors](#)

### About Hukseflux

Hukseflux Thermal Sensors offers measurement solutions for the most challenging applications. We design and supply sensors as well as test & measuring systems, and offer related services such as engineering and consultancy. With our laboratory facilities, we provide testing services including material characterisation and calibration. Our main area of expertise is measurement of heat transfer and thermal quantities such as solar radiation, heat flux and thermal conductivity. Hukseflux is ISO 9001:2008 certified. Hukseflux sensors, systems and services are offered worldwide via our office in Delft, the Netherlands and local distributors.

Interested in this product?  
E-mail us at: [info@hukseflux.com](mailto:info@hukseflux.com)