

# Pyranometer and pyr heliometer calibration - all major brands, affordable -

Hukseflux' worldwide calibration services at your disposal

*Hukseflux is a leading manufacturer of solar radiation sensors. Our worldwide calibration and servicing organisation is at your disposal; not only for pyranometers of the Hukseflux brand. Hukseflux can work more efficiently if you supply us your sensors in batches of 3 or more instruments. Benefit from our quantity discounts!*

## Introduction

Hukseflux' main area of expertise is measurement of heat transfer and thermal quantities. We are a leading manufacturer, both in technology and market share, of solar radiation sensors. Did you know that Hukseflux offers calibration services for pyranometers and pyr heliometers as well?

## Services: what we do

- perform accurate calibration of solar radiation sensors
- work according to established standards
- calibrate multiple brands

## Why work with us

- well established and traceable calibration methods
- fast turnaround times
- calibration references for the most common brands and models
- Hukseflux has calibration facilities in the main global economies: USA, EU, China, India, Japan and Brazil



**Figure 1** pyranometer and pyr heliometer users are supported by the worldwide Hukseflux calibration and servicing organisation



**Figure 2** calibration of all major pyranometer brands

## Capabilities and restrictions

See next page for solar sensor calibration capabilities and restrictions. Please contact us for more details. In case other-than-Hukseflux brand sensors need extensive servicing or repair, we recommend obtaining this service from the manufacturer.

## Certificate

With its products or as part of calibration services, Hukseflux issues calibration certificates with content limited as per ISO/IEC 17025-7.8.1.3. Such a certificate contains the calibration result, an uncertainty, a description of the calibration procedure and the traceability. In case an earlier certificate is supplied with the instrument, we include a reference in our calibration certificate to this earlier certificate.

## Sensor calibration service capabilities

**Table 1** Hukseflux' most popular calibration services

<b>HUKSEFLUX' MOST COMMON CALIBRATION SERVICES</b>			
<b>calibration item</b>	<b>brand and model</b>	<b>calibration method</b>	<b>comment</b>
Pyranometers and pyrhemometers	Hukseflux LP, SR, DR series Kipp & Zonen CMP, SMP, CHP, SHP series	ISO 9847:1992 Solar energy - Calibration of field pyranometers by comparison to a reference pyranometer. ISO 9847 is also applied to pyrhemometers ASTM G207 - 11 Standard Test Method for Indoor Transfer of Calibration from Reference to Field Pyranometers.	Hukseflux has limited repair possibilities for other-than-Hukseflux brand sensors.
amplifiers	Hukseflux -TR amplifiers Kipp & Zonen AMPBOX series	Calibration and re-programming. Calibration traceable to traceable voltage and current standards.	

## Checklist / requirements for recalibration of sensors

**Table 2** Checklist for calibration services

<b>HUKSEFLUX CALIBRATION SERVICES</b>		
<b>subject</b>	<b>responsible party</b>	<b>responsibility</b>
RMA form	customer	Products and calibration items may only be returned or sent for calibration to Hukseflux after obtaining a Return Materials Authorisation and the accompanying RMA number. To obtain such authorisation, please request and complete the RMA form and e-mail it to <a href="mailto:info@hukseflux.com">info@hukseflux.com</a> . A completed RMA form contains the sensor model(s), quantity and serial number(s), the sensor condition, in particular if additional servicing is needed or not.
prices / quantity discounts	customer and Hukseflux	Increase efficiency; ask for our quantity discounts for batches of 3 or more pyranometers in one order. Please note that your shipment costs per instrument also benefit from batch processing.
list of permissible sensors	customer	Hukseflux can calibrate all sensors of the Hukseflux brand. In case of other-than-Hukseflux brand sensors only: transmit the brand name and a scanned copy of the original calibration certificate. Hukseflux may not be capable of calibrating your sensor. Wait for our quotation. We can calibrate the following pyranometer models of the Kipp & Zonen brand: CMP/SMP 10, 11, 21 produced after 01-01-2008 or calibrated at the manufacturer with the following references: CMP21 70114 and 70115 CM/CMP/SMP 3, 4, 6 produced after 01-01-2006 or calibrated at the manufacturer with the following references CMP6 910012, CMP3 60193 and 71176 and the following pyrhemometer models of the Kipp & Zonen brand: CH/CHP/SHP1, only produced after 01-01-2011 or calibrated at the manufacturer with the following references: CHP1 ref 1 and ref 2. Other sensors are treated on a case-by-case basis.
references	customer	Only if different-than-usual calibration reference conditions are required: specify required calibration reference conditions.
logistics: supply	customer	Specify shipment responsibility. Usually the customer will be responsible for shipment both ways.
quotation, RMA authorisation, RMA number	Hukseflux	The quotation will include an RMA number. Possibly, in case of unclear condition of the sensor, the quotation includes a diagnostics fee. This fee must also be paid in case the sensor is irreparable. In case sensors are not clean, a cleaning fee may be charged per sensor.
order	customer	Include RMA number.
calibration	Hukseflux	For common models, of heat flux sensors, pyrhemometers and pyranometers, the calibration has a processing time of 15 working days. This can be shortened upon request.
logistics: pickup	customer	Please follow Hukseflux shipment directions.



**Figure 3** a typical calibration system at Hukseflux

### 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 certified. Hukseflux sensors, systems and services are offered worldwide via our office in Delft, the Netherlands and local distributors.

Would you like more information?  
E-mail us at: [info@hukseflux.com](mailto:info@hukseflux.com)