



**HUKX**

Sensor  
Technology

Brochure  
Black and gold stickers

**BLK – GLD**  
**sticker series**

# BLK – GLD sticker series

## Black and gold stickers

for measuring convective and radiative heat flux separately

Want to study energy transport/heat flux in detail? Hukx helps taking your measurement to the next level. Simply provide your heat flux sensors with radiation-absorbing black and radiation-reflecting gold stickers. You can then measure convective + radiative flux with one, and only convective flux with the other. Subtract the two measurements and you have radiative flux.

BLK and GLD stickers are available for sensors of the FHF05 series and for the HFP01. They are designed to be applied by the user to the sensor; see the user manual and installation video for instructions.

Figure 1 BLK – GLD stickers with radiation-absorbing (black) and - reflecting (gold) coatings are available for sensors of the FHF05(SC) series and HFP01 heat flux sensors.



## Introduction

Heat flux measurement is a powerful tool to gain insights into processes involving the transport of thermal energy. Heat flux consists of conductive, convective and radiative flux. When measuring heat flux, users may wish to measure only radiative or only convective heat flux. This is now possible with the BLK – GLD sticker series, designed to be used with a wide range of our market-leading heat flux sensors. The BLK black absorbing stickers will absorb all radiation and are sensitive to both radiative and convective heat flux, while the GLD gold reflective stickers reflect all radiation and are sensitive to convective heat flux only. Combining BLK and GLD, applied to two separate heat flux sensors, will allow for measuring radiative heat flux:

$$\begin{aligned}\Phi_{\text{convection + radiation}} &= \Phi_{\text{BLK}} \\ \Phi_{\text{convection}} &= \Phi_{\text{GLD}} \\ \Phi_{\text{radiation}} &= \Phi_{\text{BLK}} - \Phi_{\text{GLD}}\end{aligned}$$

## Unique features and benefits

- makes it possible to perform convective and radiative heat flux measurements
- available as accessory for the FHF05(SC) series and HFP01 heat flux sensors
- designed to be applied by the user



Figure 3 Example: FHF05-50X50 foil heat flux sensor without and with BLK-50X50 and GLD-50X50 stickers.

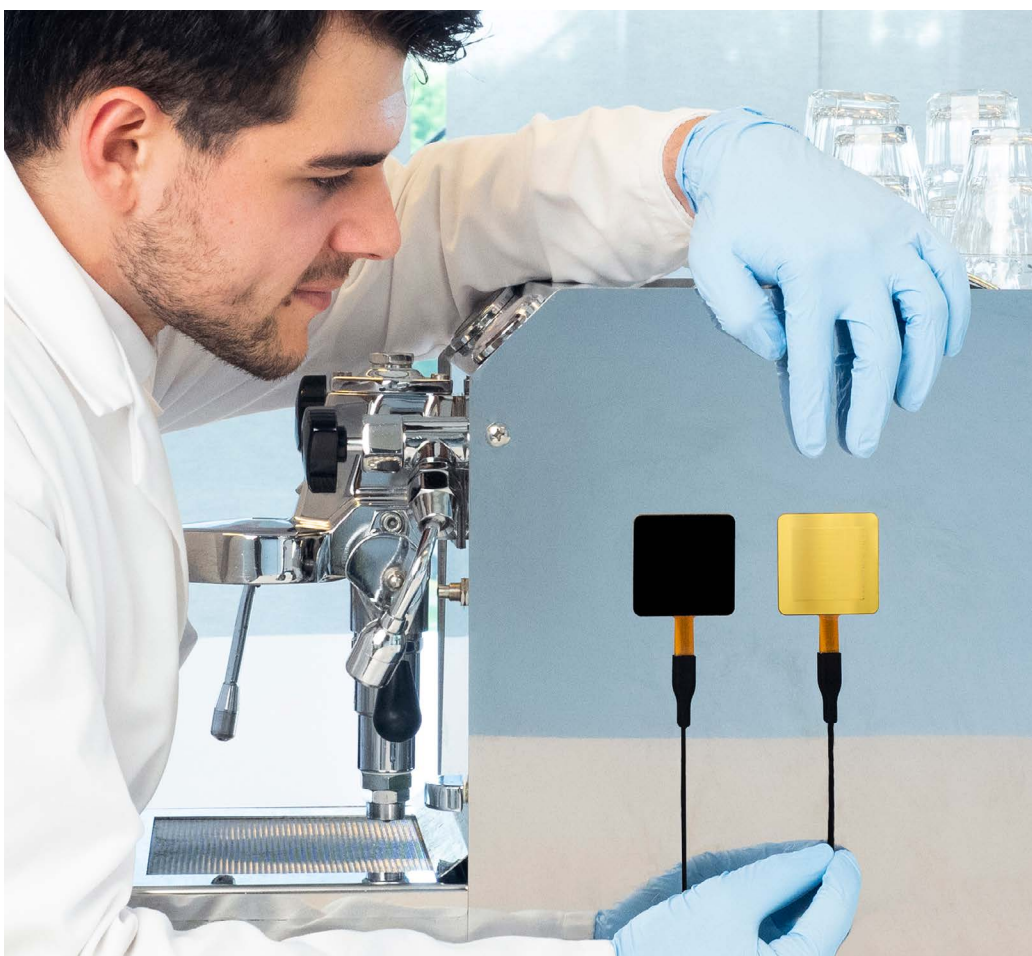


Figure 2 Measuring with BLK – GLD stickers; application of a BLK black sticker and a GLD gold sticker on an FHF05 sensor for measuring radiative and convective heat flux.

## Easy to use

BLK – GLD stickers are designed to be applied by the user, but can optionally also be pre-applied at the factory. Applying a sticker to a heat flux sensor does not change the sensitivity of the sensor, so no additional calibration is required. Using the reliable measurement technology behind our heat flux sensors, separating convective and radiative heat flux has never been easier.



Figure 4 BLK – GLD sticker series are designed to be easily applied by the user. Pre-application to the sensor of your choice at the factory is optional.

## See also

- [instruction video](#) on our YouTube channel
- [FHF05 series](#) general-purpose heat flux sensors
- [FHF05SC series](#) self-calibrating heat flux sensor with integrated heater
- model [HFP01](#) (used on walls and in soils as lower cost alternative to FHF05-85X85)
- view our complete [range of heat flux sensors](#)

## Options

- pre-applied to the sensor at the factory

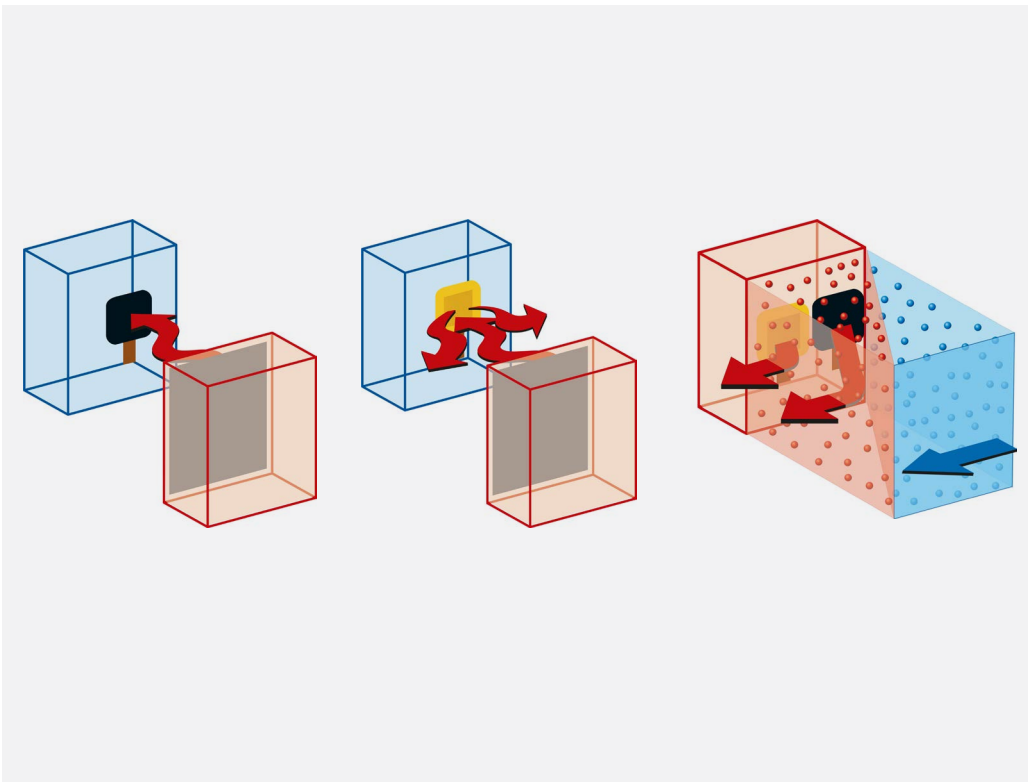


Figure 5 The working principle of BLK – GLD stickers: sensors equipped with black absorbing stickers absorb all radiation while gold reflective stickers reflect all radiation. Both stickers are sensitive to convective heat flux.

# BLK – GLD sticker specifications

## BLK

measurand	hemispherical solar radiation
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measurand	convective + radiative heat flux
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spectral range (UV-VIS-NIR-FIR)	250 to > 10000 x 10 <sup>-9</sup> m
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absorption over range	> 95 %
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rated temperature range – continuous use	-40 to +150 °C *
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rated temperature range – short intervals	-40 to +260 °C *
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## GLD

measurand	convective heat flux
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spectral range (NIR-FIR)	700 to > 1000 x 10 <sup>-9</sup> m
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reflection over range	> 95 %
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spectral range (VIS)	400 to 700 x 10 <sup>-9</sup> m
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reflection over range	> 80 %
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solar absorption	< 20 %
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rated temperature range – continuous use	-185 to +150 °C *
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rated temperature range – short intervals	-185 to +260 °C *
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## Working with BLK – GLD sticker series

effect on sensor sensitivity	negligible
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application on sensor	By user or at factory see user manual and instruction video.
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## Versions and order codes

GLD for use with FHF05(SC):	GLD-10X10 GLD-15X30 GLD-50X50 (SC) GLD-15X85 GLD-85X85 (SC)
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BLK for use with FHF05(SC):	BLK-10X10 BLK-15X30 BLK-50X50 (SC) BLK-15X85 BLK-85X85 (SC)
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GLD for use with HFP01:	GLD-80
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BLK for use with HFP01:	BLK-80
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\* See also the rated temperature ranges of the heat flux sensors in the sensor user manuals.

## About Hukx

Hukx is the leading innovator in solar radiation and heat flux sensor technology. We are proud to set the standard in high-accuracy measurement, and to be working at the heart of the energy transition.

Customers worldwide rely on our bestselling pyranometers and heat flux sensors. From sensor design and selection to supply and recalibration, we support you across the entire lifecycle.

Hukx is headquartered in the Netherlands, with locally owned representative sales offices in the USA, Brazil, India, China, Southeast Asia, and Japan.

Let us help you select the best sensor for your application. Get in touch with our experts today via: [info@hukx.com](mailto:info@hukx.com)

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