

Data sheet

Ultraviolet Flame Sensor UV

Application



Danfoss UV sensors are used to detect the flame in blue flame oil burners. They are intended for use together with Danfoss controls in the OBC 80 and BHO 70 series.

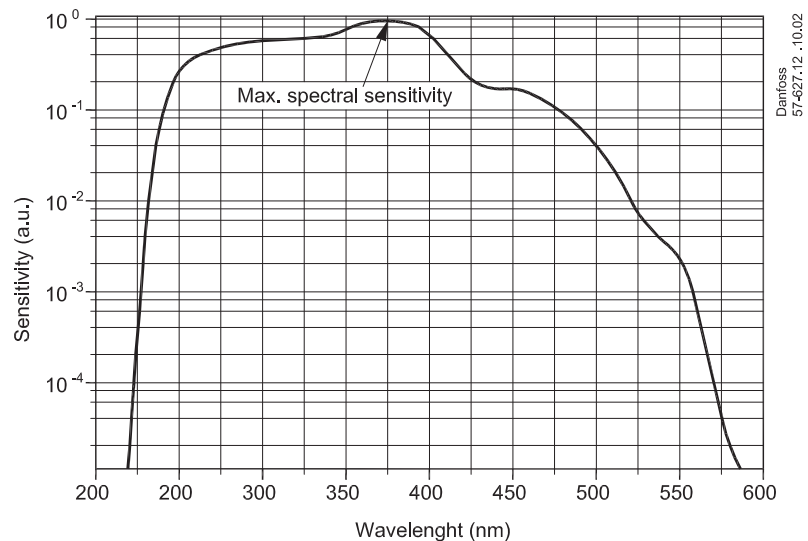
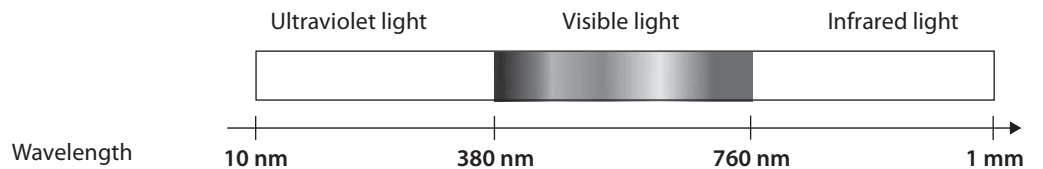
The UV sensors meet the requirements of the EN230:2005 standard and also meets the requirements of the RoHS and WEEE Directives.

Function

Light rays are sent at different wavelengths. The light that the human eye can see lies in the range of 380 to 760 nm and is called visible light. In the blue flame oil burner the flame's visible light is very dim and therefore cannot be detected by the LD/LDS sensor series, which is built on the photoresistance principle. In the case of UV sensors, the flame's ultraviolet light is used instead, which is detected by a UV diode. In the sensors, the sensor signal is converted by an amplifier circuit into a signal that the control can use.

To ensure unambiguous detection of the ultraviolet light, it is first transmitted through a lens that focusses the light rays onto the surface of the UV diode, and then through a filter that reduces the sensitivity to a desired wavelength range.

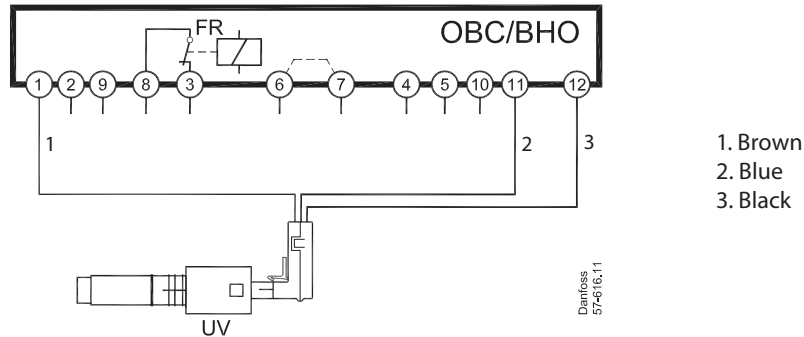
Danfoss UV sensors have max. sensitivity at 375 nm, which is apparent from the logarithmic diagram, where sensitivity at 375 nm is given to 100%.



Electrical connection

The UV sensors are connected to Danfoss controls in the OBC 80 and BHO 70 series as shown in the diagram.

Note that the blue wire must be connected to terminal 11 and not to the common 0 on terminal 2 or the appertaining auxiliary terminals in the base section.



Mounting

The UV sensors are designed to be very directional to limit the influence of other light sources, primarily the ignition spark that emits UV light. The sensors must be installed so that they are not affected by light from the ignition spark and, at the same time, so that the best possible input from the flame is achieved. It is very important that the mounting flange or piping used has the UV sensor fixed in the correct position.

The UV sensors' sensitivity is shown as a function of the angle deviation in Fig. 1 and 2.

If a sufficient signal is not achieved, we recommend selecting a UV sensor of higher sensitivity. To determine the quality of the signal, use the measurement setup below. If there is no flame/darkness, the value should be $\leq 5 \mu A$ and when there is a flame/light it should be $\geq 65 \mu A$.

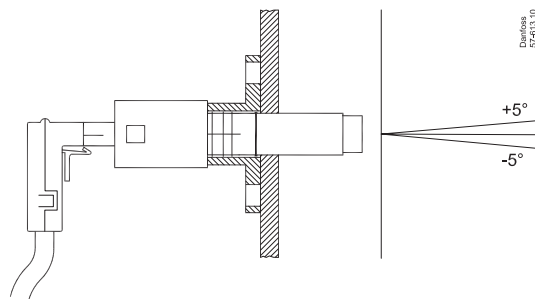


Fig. 1

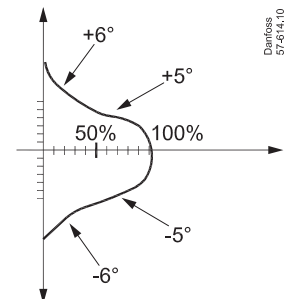


Fig. 2

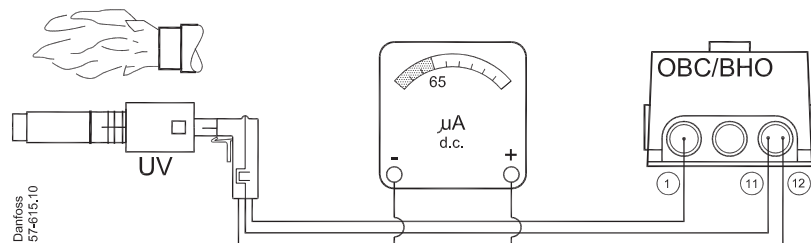


Fig. 3

Technical Data

| | | |
|---------------------------------|-------------------------|--|
| Mains connection | | 230 V, 50/60 Hz, 0.3 VA |
| Enclosure | | IP 40 |
| Signal output | | max. 100 µA |
| Recommended min. signal output | | 65 µA |
| Signal for no light | | max. 5 µA |
| Ambient temperature | Operation | -20 - +70 °C, short time operation up to 75 °C |
| | Transport | -30 - +70 °C |
| Weight | | 23 g |
| Wiring OBC 80/ BHO 70 series | Brown wire, 230 V mains | terminal 1 |
| | Blue wire, neutral | terminal 11 |
| | Black wire, signal | terminal 12 |

Ordering

| Product | Code no. |
|--------------------------|-----------------|
| UV1 – Normal sensitivity | 057H7051 |
| Flange | 057H7061 |
| 300 mm cable | 057H1040 |
| 400 mm cable | 057H1041 |
| 500 mm cable | 057H1042 |

Dimensions

