

# UV sensor UVS 10

## OPERATING INSTRUCTIONS

· Edition 11.23 · EN · 03250845



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### 1 SAFETY

#### 1.1 Please read and keep in a safe place



Please read through these instructions carefully before installing or operating. Following the installation, pass the instructions on to the operator. This unit must be installed and commissioned in accordance with the regulations and standards in force. These instructions can also be found at [www.docuthek.com](http://www.docuthek.com).

#### 1.2 Explanation of symbols

**1, 2, 3, a, b, c** = Action

**→** = Instruction

#### 1.3 Liability

We will not be held liable for damage resulting from non-observance of the instructions and non-compliant use.

#### 1.4 Safety instructions

Information that is relevant for safety is indicated in the instructions as follows:

#### **⚠ DANGER**

Indicates potentially fatal situations.

#### **⚠ WARNING**

Indicates possible danger to life and limb.

#### **⚠ CAUTION**

Indicates possible material damage.

All interventions may only be carried out by qualified gas technicians. Electrical interventions may only be carried out by qualified electricians.

#### 1.5 Conversion, spare parts

All technical changes are prohibited. Only use OEM spare parts.

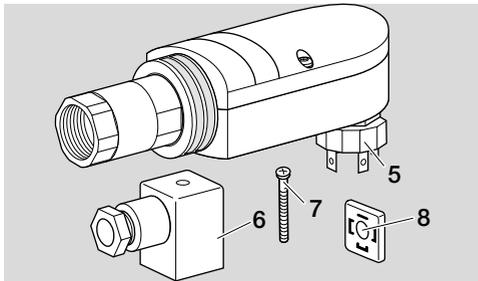
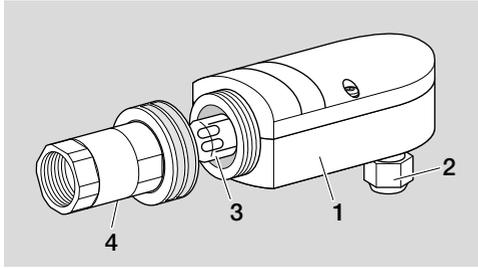
## 2 CHECKING THE USAGE

UV sensor for flame control on gas burners, only in conjunction with Elster Kromschröder automatic burner control units IFS or IFD, flame detectors IFW, PFF or FDU or burner control units BCU or PFU. This function is only guaranteed when used within the specified limits – see also page 6 (10 Technical data). Any other use is considered as non-compliant.

### 2.1 Type code

<b>UVS</b>	UV sensor
<b>10</b>	Series 10
<b>D</b>	Quartz glass heat guard
<b>L</b>	Quartz glass heat guard lens
<b>0</b>	Rp 1/2 internal thread
<b>1</b>	Rp 1/2 internal thread and cooling air connection
<b>2</b>	1/2 NPT internal thread
<b>3</b>	1/2 NPT internal thread and cooling air connection
<b>4</b>	UVS 1 adapter (28 mm (1.1"))
<b>G1</b>	M20 cable gland
<b>P2</b>	4-pin plug, with socket

### 2.2 Part designations



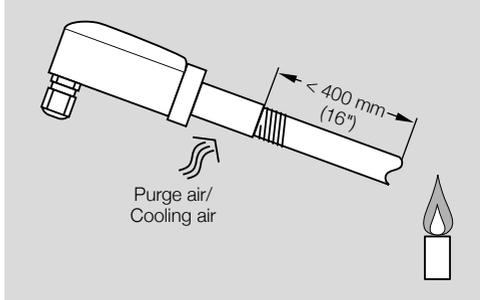
- 1 Housing
- 2 Cable gland
- 3 UV tube
- 4 Adapter with quartz glass
- 5 Plug
- 6 Socket
- 7 Retaining screw
- 8 Seal

## 3 INSTALLATION

### ⚠ CAUTION

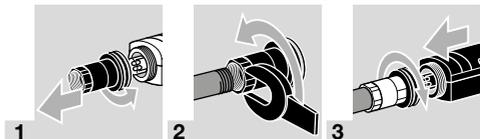
Please observe the following to ensure that the UVS is not damaged during installation:

- Use UV sensor only in conjunction with Elster Kromschröder automatic burner control units, flame detectors or burner control units.
- Cool UV sensor with filtered air when subject to higher temperatures, see page 5 (9 Accessories). In addition, this protects the sensor from dirt and condensation.

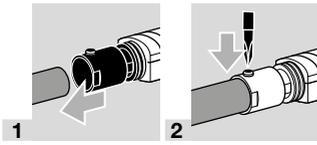


- It can be fitted using a 1/2" viewing tube that should be directed at the first flame third as this is where the highest UV radiation is generally found. The inside of the steel tube should not be coated and the tube should be directed at the flame from above so that no dirt collects in front of the UV sensor.
- The UVS..L with quartz glass lens must be precisely directed at the flame.
- The UV sensor may only be exposed to the UV light of its own flame. It should be protected from other sources of ultraviolet light, e.g. neighbouring flames (this must be observed when monitoring pilot and main burners in particular), ignition sparks, arcs from welding devices or lamps emitting ultraviolet light.
- Do not expose the UV sensor viewing opening to direct sunlight.
- Supply cooling air to cool and protect the optical system from soiling and condensation.
- Max. cable length in accordance with the specifications for automatic burner control units IFS, IFD, flame detectors IFW, PFF, FDU or burner control units BCU, PFU.

### UVS 10 with internal thread adapter



## UVS 10 with UVS 1 adapter



## 4 CABLE SELECTION

- Use mains cable suitable for the type of operation and complying with local regulations.
- Signal line  $\leq 2.5 \text{ mm}^2$ .
- The cable gland on the UVS 10..G1 or on the socket of the UVS 10..P2 is suitable for cable diameters of 7 to 13 mm.

## 5 CABLE INSTALLATION

- External electrical interference must be avoided.
- Lay cables individually and, if possible, not in a metal conduit.
- Do not lay UV cable and ignition cable together but lay them as far apart as possible.

## 6 WIRING

### ⚠ WARNING

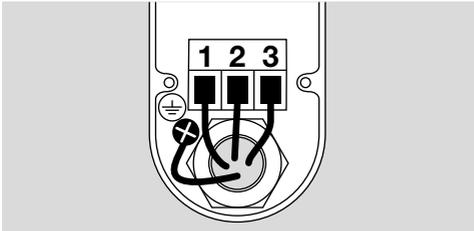
Electric shocks can be fatal!

- Before working on possible live components, ensure the unit is disconnected from the power supply.

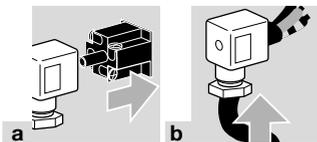
- 1 Disconnect the system from the electrical power supply.
- 2 Shut off the gas supply.

### UVS 10..G1

- a Route the cables through the M20 cable gland.
- b Wire the UV sensor as shown in the wiring diagram for the correctly selected automatic burner control unit, flame detector or burner control unit, including the PE wire.

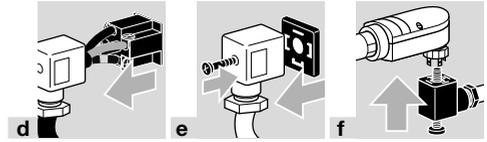
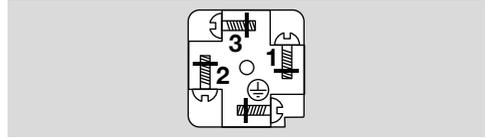


### UVS 10..P2



- c Wire the socket as shown in the wiring diagram for the correctly selected automatic burner

control unit, flame detector or burner control unit, including the PE wire:



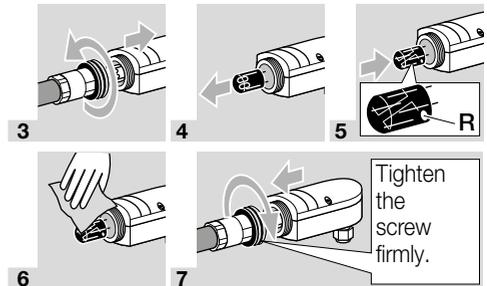
## 7 MAINTENANCE

### Replacing the UV tube

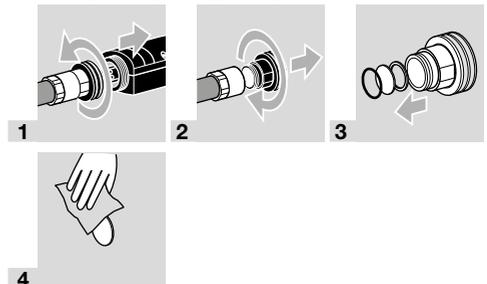
- The UV tube in the UV sensor must be replaced after approx. 10,000 operating hours (approx. 1 year) as its service life has expired, see page 5 (9 Accessories).

  - 1 Disconnect the system from the electrical power supply.
  - 2 Shut off the gas supply.

  - Do not touch the new UV tube with your bare fingers.
  - Insert the new tube (Order No. 7 496 044 5) so that the red dot (R) is on the right-hand side.



### Cleaning or replacing the quartz glass disc



- 5 Follow the reverse procedure when reassembling.
- For a quartz glass lens, ensure that the lens curvature points towards the flame.

## 8 ASSISTANCE IN THE EVENT OF MALFUNCTION

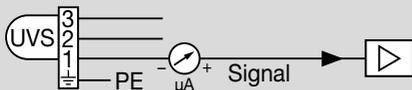
### **⚠ WARNING**

Electric shocks can be fatal!

- Before working on possible live components, ensure the unit is disconnected from the power supply.
- Fault-clearance must only be undertaken by authorized trained personnel!
- Do not carry out repairs on the UV sensor on your own as this will cancel our guarantee. Unauthorized repairs or incorrect electrical connections can cause the UV sensor to become defective. In this case, fail-safe operation can no longer be guaranteed.
- (Remote) resets may only be conducted by authorized trained personnel with continuous monitoring of the burner to be reset.
- Safe operation only in conjunction with Elster Kromschroder automatic burner control units, flame detectors or burner control units.

**1** Measure the current in the flame signal cable (connect the positive pole of the measuring instrument to the cable from the automatic burner control unit and the negative pole to the cable from the UV sensor).

→ The measured direct current must be greater than 1  $\mu$ A (typically 20  $\mu$ A).



### **? Faults**

**!** Cause

- Remedy

**? A direct current is flowing, but no flame present.**

**!** The UV sensor is influenced by the flames of other burners, e.g. by reflection on the furnace walls.

- Position the sensor so that it can only “see” its own dedicated flame (e.g. use viewing tube).

**!** Humidity inside the sensor.

- Vent sensor.

**!** The service life of the UV sensor has expired.

- Replace UV tube in the UV sensor, see page 3 (7 Maintenance).

**!** The sensitivity of the flame amplifier in the automatic burner control unit is too high.

- Adjust switching threshold on automatic burner control units with adjustable switch-off threshold.

**? No direct current although the flame is burning.**

**!** The UV sensor is dirty, e.g. sooted.

- Clean sensor or quartz glass.

**!** Humidity inside the UV sensor.

- Vent sensor.

**!** The distance between the UV sensor and the flame is too great.

- Reduce the distance.

**? The automatic burner control unit ignites in pulses.**

**!** The sensor “sees” the ignition spark.

- Reposition the UV sensor so that it cannot “see” the ignition spark.
- Use an automatic burner control unit that is able to distinguish between an ignition spark and a flame signal.

**? The intensity of the flame signal decreases after a longer period of operation.**

**!** UV tube fault due to incorrect UV sensor connections.

- Remove the UV sensor and return for repair.
- Connect the UV sensor in accordance with the wiring instructions.

**? The automatic burner control unit performs a fault lock-out during start-up or operation.**

**!** The highly fluctuating flame signal temporarily falls below the switch-off threshold.

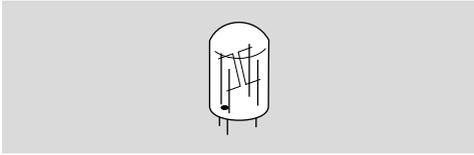
- Reduce the distance between UV sensor and flame.
- Position the UV sensor so that it can “see” the flame without hindrance (e.g. smoke curtain).
- Replace the quartz glass disc in the UV sensor with a lens, see page 5 (9 Accessories).

**!** The switch-off threshold in the automatic burner control unit is set too high, e.g. BCU, PFU or IFD 258.

- Adjust switch-off threshold.

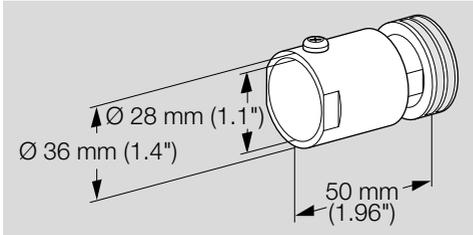
## 9 ACCESSORIES

### 9.1 UV tube for UVS 10



Order No.: 7 496 044 5

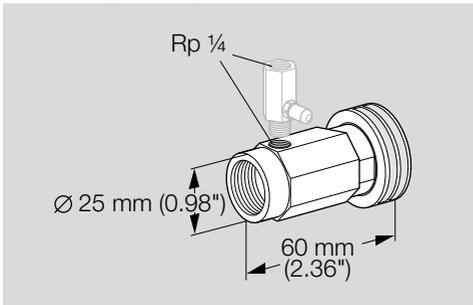
### 9.2 Adapter UVS 1 for UVS 10



With quartz glass heat guard

Order No.: 7 496 061 5

### 9.3 Cooling air adapter for UVS 10

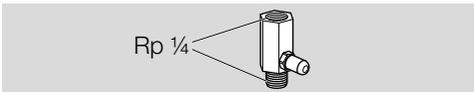


With quartz glass heat guard and Rp 1/4 connection for nozzle.

Rp 1/2, Order No.: 7 496 061 4

1/2 NPT, Order No.: 7 496 061 3

### Nozzle for cooling air adapter



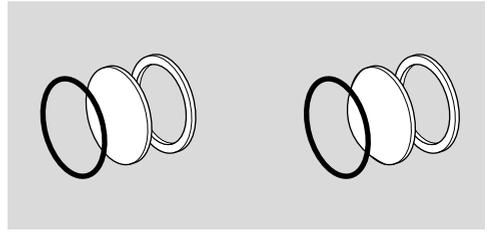
To adjust the air volume for purging/cooling the sensor UVS 10.

Nozzle for cooling air adapter, d = 2.3 mm, Order No.: 7 496 061 6

Nozzle for cooling air adapter, d = 3.3 mm, Order No.: 7 496 063 7

Nozzle for cooling air adapter, d = 4.5 mm, Order No.: 7 496 063 8

### 9.4 Quartz glass disc for UVS 10



To protect the UV tube.

Quartz glass disc with seal,

Order No.: 7 496 061 2.

Quartz glass lens with seal,

Order No.: 7 496 061 1;

when installing, ensure that the lens curvature points towards the flame. Precisely align the UV sensor.

The gap between the UV sensor and the flame can be increased to approximately 600 to 1200 mm (23" to 47").

## 10 TECHNICAL DATA

### Ambient conditions

Condensation and dew in and on the unit are not permitted.

Avoid direct sunlight or radiation from red-hot surfaces on the unit.

Avoid corrosive influences, e.g. salty ambient air or SO<sub>2</sub>.

Ambient temperature:

-40 to +80°C (-40 to +176°F).

Storage temperature:

-40 to +80°C (-40 to +176°F).

Transport temperature = ambient temperature.

Enclosure: IP 65.

Permitted operating altitude: < 2000 m AMSL.

### Mechanical data

Aluminium housing with integrated heat guard, with connection terminals.

Designed lifetime of the UV tube:

approx. 10,000 operating hours.

Distance between UV sensor and flame:

300 to 400 mm (12 to 16"),

with quartz glass lens:

approx. 600 to 1200 mm (23 to 47").

Weight: 280 g (0.6 lbs).

Max. length of cable between UV sensor and automatic burner control unit:

see instructions for automatic burner control unit.

### Electrical data

UV tube: R16388,

spectral range: 185 to 280 nm,

max. sensitivity: 210 nm ± 10 nm.

Min. DC signal: 1 µA.

## FOR MORE INFORMATION

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschroder and Maxon. To learn more about our products, visit [ThermalSolutions.honeywell.com](http://ThermalSolutions.honeywell.com) or contact your Honeywell Sales Engineer.

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