

Operating instructions

UV sensor UVS 5



Cert. version 04.16

Contents

UV sensor UVS 5	1
Contents	1
Safety	1
Checking the usage	2
Installation	2
Replacement	3
Wiring	3
Maintenance	4
Replacing the UV tube	4
Assistance in the event of malfunction	4
Technical data	5
Logistics	5
Certification	6
Eurasian Customs Union	6
Contact	6

Safety

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.

Explanation of symbols

■, **1**, **2**, **3**... = Action

> = Instruction

Liability

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

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.

Conversion, spare parts

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

Changes to edition 02.16

The following chapters have been changed:

- Fully revised version

Checking the usage

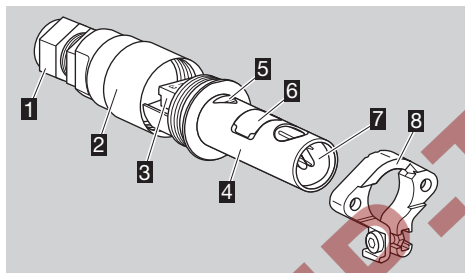
UV sensor for intermittent operation for flame control on gas burners in conjunction with Elster Kromschroder automatic burner control units (IFS, IFD, PFS, PFD), flame detectors (IFW, PFF) or burner control units (BCU, PFU).

This function is only guaranteed when used within the specified limits – see page 5 (Technical data). Any other use is considered as non-compliant.

Type code

Code	Description
UVS	UV sensor
5	Series 5
G1	Electrical connection: M20 cable gland

Part designations



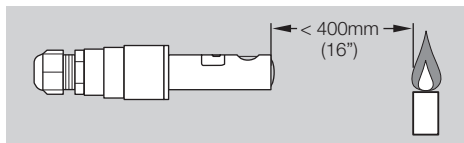
- 1** M20 cable gland
- 2** Housing
- 3** Spring force terminals (trm. 1, trm. 2, trm. 3)
- 4** Sensor head
- 5** Positioning aid
- 6** Sticker
- 7** UV tube
- 8** Bracket

Installation

! CAUTION

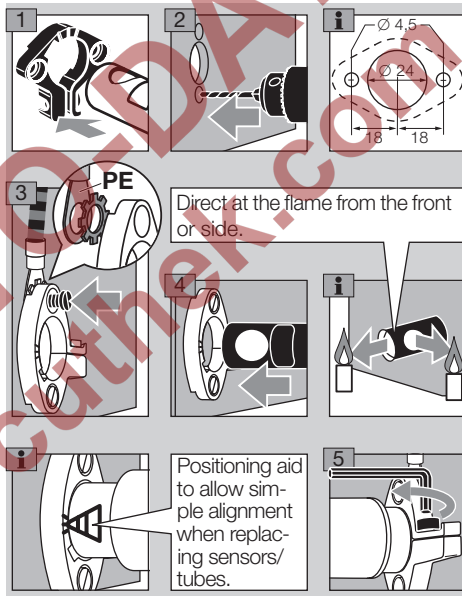
Use UV sensor only in conjunction with Elster Kromschroder automatic burner control units, flame detectors or burner control units in order to avoid damage.

- ▷ It is preferable to install the unit inclined from above or in the horizontal.



- ▷ Distance between UVS and flame: max. 400 mm (16").

- ▷ 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.
- ▷ Avoid exposing the UV sensor viewing openings to direct sunlight.
- ▷ Protect the viewing openings against dirt and moisture.
- ▷ Protect the UV sensor against electrostatic charging by grounding the combustion chamber or the bracket, see step 3.



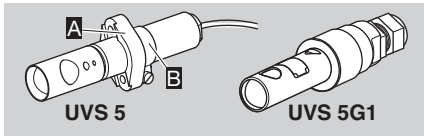
Replacement

⚠ WARNING

Electric shocks can be fatal! Before working on possible live components, ensure the unit is disconnected from the power supply.

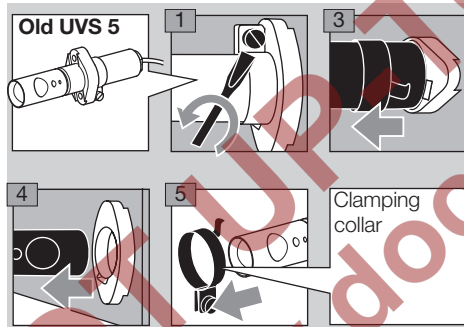
Replacing the old UVS 5 with the new UVS 5G1

- ▷ The old UVS 5 (with non-detachable PVC cable) can be replaced with the new UVS 5G1 (with cable gland and spring force terminals).



- ▷ Bracket **A** and clamping collar **B** from the old UVS 5 can be used to secure the new UVS 5G1.

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



- 6 Attach the clamping collar from the old UVS 5 to the new UVS 5G1.
- 7 Fit the new UVS 5G1 with the clamping collar in the bracket of the old UVS 5.
- ▷ Ground the combustion chamber or the bracket to protect them against electrostatic charging, see page 2 (Installation), step **3**.
- 8 Direct UVS 5G1 at the flame from the front or side.
- 9 Tighten the bolt of the clamping collar to secure the UV sensor in the required position.
- ▷ **Electrical connection:** the new UVS 5G1 can be connected to the PVC cable of the old UVS 5 (brown wire = trm. 1, white wire = trm. 2, green wire = trm. 3).



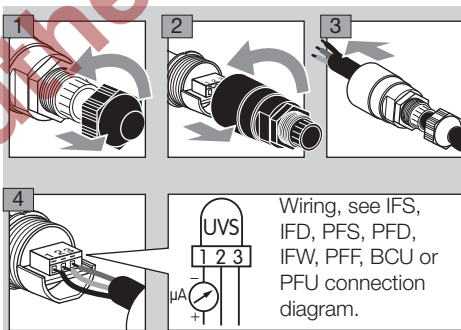
Wiring

⚠ WARNING

Electric shocks can be fatal! Before working on possible live components, ensure the unit is disconnected from the power supply.

- ▷ Connection cable:
 - Use in accordance with local regulations.
 - Lay individually and, if possible, not in a metal conduit.
 - Do not lay together with ignition cable but lay them as far apart as possible.
 - M20 cable gland is designed for cable diameters of 7 to 13 mm.
 - Spring force terminals for wire cross-sections $> 0.2 \text{ mm}^2$ to $\leq 1.5 \text{ mm}^2$ (AWG 24 to AWG 16).
 - Max. cable length in accordance with the specifications for automatic burner control units IFS, IFD, PFS, PFD, flame detectors IFW, PFF or burner control units BCU, PFU.
- ▷ External electrical interference must be avoided.

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



- ▷ Flexible wires without wire end ferrules can also be connected to the spring force terminals. To insert a flexible wire, the terminal must be opened using the push-button.

Maintenance

Replacing the UV tube

⚠ WARNING

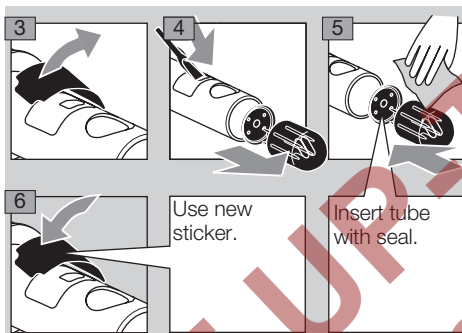
Electric shocks can be fatal! Before working on possible live components, ensure the unit is disconnected from the power supply.

! CAUTION

Do not touch the replacement UV tube with bare fingers.

- ▷ The sensor tube must be replaced after approx. 10,000 operating hours (approx. 1 year).
- ▷ Spare parts (tube, sticker, seal), see www.part-detective.de

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

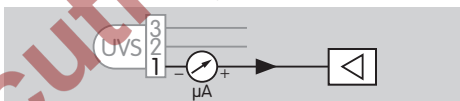


Assistance in the event of malfunction

⚠ 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.

- 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 µA (typically 20 µA).

? Fault

! 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 “view” its own dedicated flame (e.g. use viewing tube).
- ! Humidity inside the sensor.**
- Vent sensor.
- ! The service life of the UV tube has expired.**
- Replace UV tube in the UV sensor, see page 4 (Maintenance).
- ! The sensitivity of the flame amplifier in the automatic burner control unit is too high.**
- Adjust the switch-off threshold on the automatic burner control unit.
- ! Incorrect flame signal due to electrostatic charging.**
- Protect the UV sensor against electrostatic charging by grounding the combustion chamber or the bracket, see page 2 (Installation).

? No direct current although the flame is burning.

- ! The UV sensor is dirty, e.g. sooted.
- Clean sensor.
- ! Humidity inside the UV sensor.
- Remove moisture.
- ! 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.

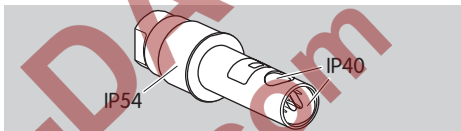
- ! UV tube fault due to incorrect UV sensor connections.
- Connect the UV sensor in accordance with the wiring instructions.
- Remove the UV sensor and return for repair.

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

- ! The highly fluctuating flame signal temporarily exceeds the switch-off threshold.
- Reduce the distance between UV sensor and flame.
- Position the UV sensor so that it can "view" the flame without hindrance (e.g. smoke curtain).
- ! The switch-off threshold in the automatic burner control unit is set too high.
- Adjust switch-off threshold.

Technical data

Plastic housing with connection terminals.
Wire cross-section for connection terminals:
 $\leq 1.5 \text{ mm}^2 (\leq \text{AWG } 16)$.
Cable gland for cable diameters of 7 to 13 mm.
Distance between UV sensor and flame:
max. 400 mm (max. 16").
UV tube: P578,
spectral range: 190 – 270 nm,
max. sensitivity: $210 \text{ nm} \pm 10 \text{ nm}$.
Designed lifetime of the UV tube:
approx. 10,000 operating hours.
Min. DC signal: $1 \mu\text{A}$.
Enclosure:



IP54 (Nema 3) in wiring chamber, IP40 around the viewing openings with fitted tube and seal.
Ambient temperature/storage temperature:
 -40 to $+80^\circ\text{C}$ (-40 to $+176^\circ\text{F}$).
Weight: 280 g (0.6 lbs).
Max. length of cable UV sensor – automatic burner control unit: see operating instructions for automatic burner control unit.

Logistics

Transport

Protect the unit from external forces (blows, shocks, vibration). On receipt of the product, check that the delivery is complete, see page 2 (Part designations). Report any transport damage immediately.

Storage

Store the product in a dry and clean place.
Storage temperature: see page 5 (Technical data).
Storage time: 6 months before using for the first time.

Packaging

The packaging material is to be disposed of in accordance with local regulations.

Disposal

Components are to be disposed of separately in accordance with local regulations.

Certification

Eurasian Customs Union



The product UVS 5 meets the technical specifications of the Eurasian Customs Union.

GB

NOT UP-TO-DATE
www.docuthek.com

Contact

If you have any technical questions, please contact your local branch office/agent. The addresses are available on the Internet or from Elster GmbH.

We reserve the right to make technical modifications in the interests of progress.

Honeywell

**krom/
schroder**

Elster GmbH
Strotheweg 1, D-49504 Lotte (Büren)

Tel +49 541 1214-0

Fax +49 541 1214-370

info@kromschroeder.com, www.kromschroeder.com