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## CONFIRMATION

on the examination of a flame detector device  
according to DIN EN 298 and DIN EN 13611, Annex J

Date: 2013-03-04

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**Test Laboratory** TÜV SÜD Industrie Service GmbH  
Abteilung Feuerungs- und Wärmetechnik  
Prüfbereich Sicherheits-, Kontroll-  
und Regeleinrichtungen

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**Product description** Flame detector device

**Subject of Test** Type **UVD 1**

**Ordering Company** Elster GmbH  
D-49504 Lotte (Büren)

The document consists of  
2 pages

**Basis of Test** DIN EN 298:2004-01 +Berichtigung 1:2006-09,  
DIN EN 13611:2011-12, Annex J;  
DIN EN 60730-1:2012-10, Annex H.11.12;  
DIN EN 50156-1:2005-03

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**Test Report** no. C-F 1432-00/10 dated 2010-01-22  
no. C-F 1432-01/13 dated 2013-03-04

The test results refer exclusively  
to the units under test.

The results in detail, the evaluation of the results and the conclusions out of the results are described in the above mentioned test reports. Excerpts from these test reports and from the test documentation are printed on the reverse.

Feuerungs- und Wärmetechnik

Johannes Steiglechner  
Leiter  
Feuerungs- und Wärmetechnik



Product description	Flame detector device
Type designation	<b>UVD 1</b>
Software version	UG110 S1.5
Electrical supply data	24 V DC
Safety time (FFRT)	0,5 s

The flame detector device is suitable for flame detection of gas burners for permanent operation, also in hot air generators.

The flame detector device fulfils the requirements of DIN EN 298:2004-01 + Berichtigung 1:2006-09.

The flame detector device fulfils the applicable technical requirements of DIN EN 13611:2011-12, annex J, for safety functions up to safety integrity level **SIL 3**.

A failure modes, effects and diagnostic analysis (FMEDA) resulted in the following safety parameters, which have been determined under consideration of DIN EN 13611, annex J:

Probability of a dangerous failure (high demand / continuous mode)	PFH <sub>D</sub>	$39,7 \cdot 10^{-9} 1/h$
Safe failure fraction	SFF	99,9 %
Average diagnostic coverage	DC <sub>AVG</sub>	98,2 %

These parameters have been calculated under the assumption of a Diagnostic Test Interval  $T_2 = 15$  seconds, and a Proof Test Interval  $T_1 = 15$  years, which is equivalent to the specified life time of the flame detector device.

The flame detector device is suitable to be used as a single device for safety instrumented functions up to safety integrity level **SIL 3**.

The flame detector device also fulfils the requirements of DIN EN 50156-1: 2005-03, clause 10.5 for furnaces and combustion systems with permanent operation up to safety integrity level **SIL 3**.

The conditions mentioned in test report no. C-F 1432-00/10 dated 2010-01-22 shall be considered during installation, commissioning and operation.