

SYSTEM 3000 / 4000

**FLAME SCANNER
4.0**

TECHNICAL DESCRIPTION

EDITION: TB 4.0-SZ1

Flame Scanner 4.0

- **Selective Monitoring of Oil - Coal Flame TÜV and DIN-DGVW approved**
- **Fail-Safe, Self-Monitoring**
- **Complete Electronic Construction**
- **UV-VIS-IR Integral Procedure**
- **Type of Protection IP 65**
- **Approved in acc. to DIN-DVGW and DIN-CERTCO**

Application

In connection with a flame amplifier of the **3000** or **4000** line, the flame scanner **4.0** forms a complete flame monitoring system and meets the safety requirements for steam generators acc. to TRD.

The flame monitoring system **3000/4000** is tested and approved acc. to EN 230 and EN 298.

The main application for this fully electronic flame scanner is the selective oil-flame detection at ignition, - support, - and load firings and especially at coal/oil combi burners. The basis for the

use of light and heavy fuel is the consequential utilization of the fuels own high frequency flame modulation even under extreme low NOx conditions. The possibility to vary the size of the flame monitoring field by means of the 3-step aperture, a reliable monitoring of boxer and tangential firings is offered, even if the sight tube is not in an optimized position. This flame scanner therefore finds it's main application in large steam generators and industrial firings of any type.

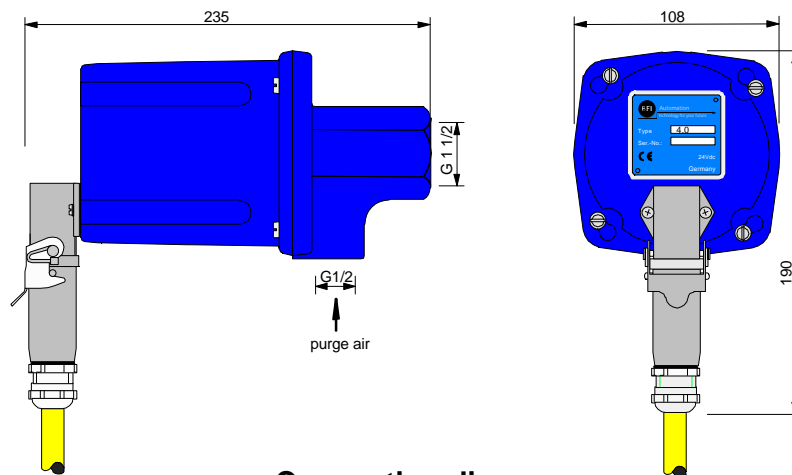
Function

The flame scanner **4.0** utilizes the well approved integral procedure of the flame radiation analysis. A silicon photo element senses the electromagnetic radiation released during the combustion process from near ultraviolet to near infrared. The evaluation of the flame modulation resulting from the fuel oxydation with oxygen, permits a clear and separate identification of the typical flame signals from liquid fuels against coal firing signals. A precise shielding of the flicker frequencies smaller 60Hz achieves the suppression of background radiation due to adjacent burners or combustion chamber walls. The re-

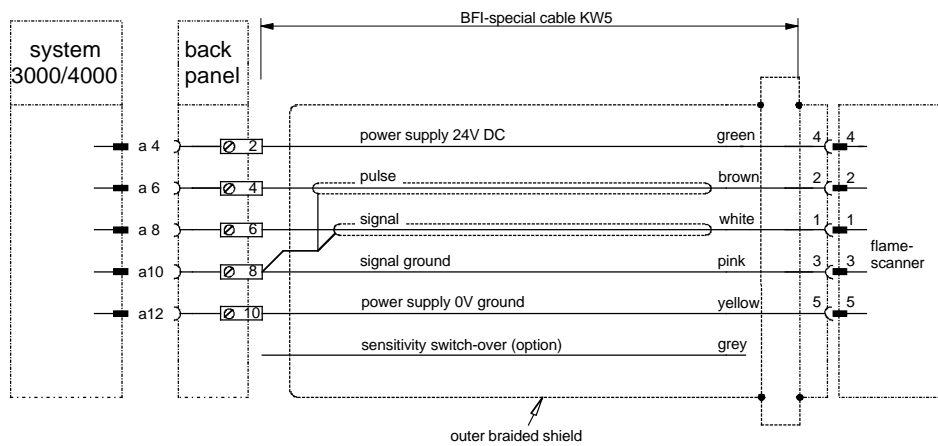
maining information is then sufficient to provide a precise flame evaluation. Further funtional groups serve for the processing and forming of signals into standardized digital signals which are transmitted to the flame scanner.

This fully electronic flame scanner has no moveable mechanical parts. The photo element is non-ageing thus achieving that the sensitivity of the monitoring equipment remains unaffected even after years of service, maintenance is not necessary. This means that the user has a significantly enhanced usage of his entire firing equipment.

Dimensions



Connection diagram



Technical Data

Self-monitoring for the fail-safe function control accordance to EN 230, EN 298. Conforms to the requirement of DIN VDE 0116 and TRD 411 to 414, approved accordance to DIN-DVGW and DIN CERTCO.
Variable 3-step sight field.

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|-----------------------------|--|
| Spectral sensitivity | 300 to 1050 nm |
| Viewing angle | 1°, 2° or 3° |
| Self-monitoring | fully electronic, 1* per second |
| Operating voltage | 24 V DC, inner electrical isolation |
| Current consumption | max. 100mA |
| Operating temperature range | -20 to +70°C |
| Electric connection | dust-proof plug connector |
| Protection | IP 65 |
| Length of cable | max. 1000m (KW 5) |
| Sight tube connection | 1" internal thread ISO 228 |
| Purging air connection | 1/2" internal thread. ISO 228 |
| Purging air quantity | 10 Nm ³ /h |
| or | |
| Purging air pressure | 0,02 bar above combustion chamber inner pressure |
| Weight | approximate 1kg |
| Part no. | S 508.0 |

This flame scanner is also available in an Ex-casing or in LWL – technique.

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