

SYSTEM 3000 / 4000

FLAME SCANNER

4.2

TECHNICAL DESCRIPTION

EDITION: TB 4.2-SZ,1

Flame Scanner

4.2

- **Monitoring of combustion chambers of any type**
- **TÜV, DIN-DVGW and DIN- CERTCO approved**
- **Fail-Safe, Self-Monitoring**
- **Fully Electronic Design**
- **UV-VIS-IR Integral Procedure**
- **Type of Protection IP 65**

Application

In connection with a flame amplifier of the **3000** or **4000** line, the flame scanner **4.2** 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 flame detection for the monitoring of combustion chamber at differential firings.

The fully automatic amplification control with adaptation to the flame modulation of gas-oil and coal flames, permits an application completely independent from fuel. The free choice of size of the flame monitoring field of the combustion and the specific layout of the modulation filter makes the flame scanner **4.2** a reliable monitoring device for fluidized-bed – and grid firings as well as for wood flames.

Function

The flame scanner **4.2** utilizes the well approved integral procedure of the flame radiation analysis. The radiation sensed by a photo element is immediately processed by a control circuit (AGC) optimizing the operating point of the flame scanner in slave-operation with the fuel radiation.

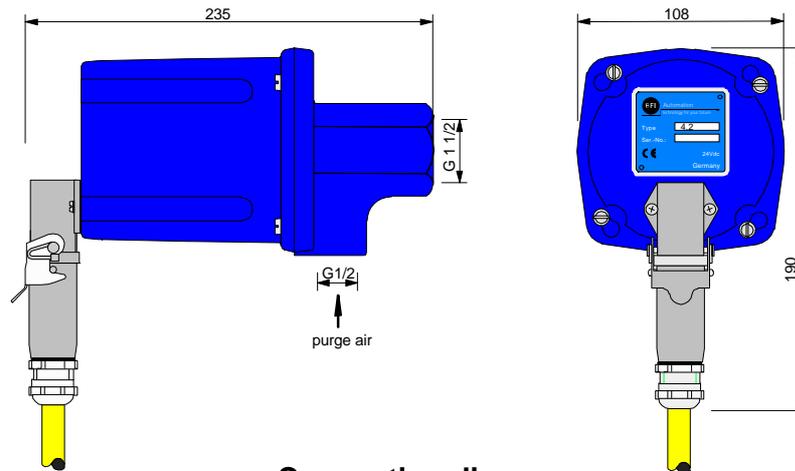
Then a precise suppression of the flicker frequencies smaller 25Hz, achieves the suppression of background radiation caused by adjacent burners or combustion chambers.

An additional automatic frequency control (AFC) avoids unsteady signals, caused by either changing dust quality or by changing ignition zone on the burner load range.

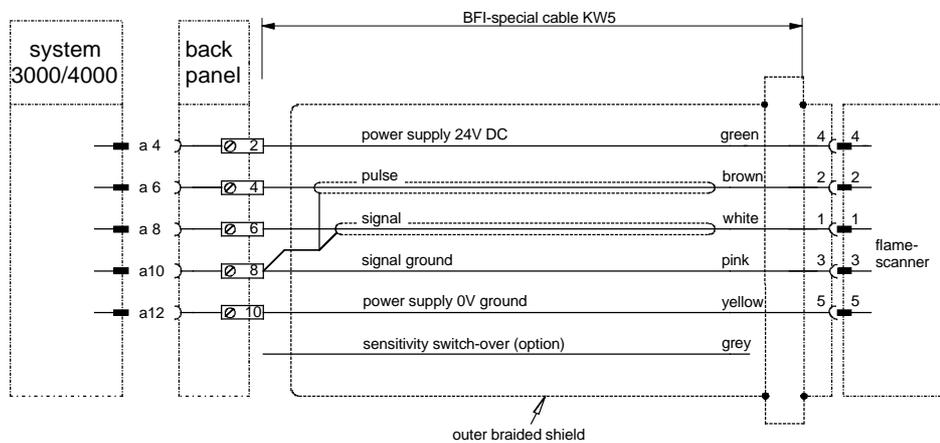
The further possibilities to choose 3 different flame modulation characteristics, and the size de-

termination of the sight field, permits the application of this flame scanner in all combustion chamber geometries and burner constructions. The following functional groups serve for the signal processing of the flame evaluation and conversion into standardized digital signals transmitted to the flame monitoring unit. 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 the 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, automatic sensitivity control (AGC), automatic frequency control (AFC) 3 selectable modulation filter.

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 508.2H

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

Edition : 07/98 Right of technical modifications reserved