

SYSTEM 3000 / 4000

FLAME SCANNER

2

TECHNICAL DESCRIPTION

EDITION : TB 2-SZ1

Flame Scanner 2

- Selective Monitoring of Gas- and Oil Flame
- TÜV and DIN-DVGW approved
- Fail-Safe, Self-Monitoring Complete Electronic Construction
- Spectral Procedure
- Type of Protection IP 65
- Approved in acc. to DIN-DVGW and DIN CERTCO

Application

In connection with a flame detector of the **3000** or **4000** line, the flame scanner **2** forms a complete flame monitoring system and meets the safety requirements for steam generators in acc. to TRD.

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

The application range for this fully electronic UV-VIS-IR flame scanner is the gas-and oil flame detection for the selective burner monitoring in large steam generators, in single-burner installations, and also for special application purposes as for instance in gas turbines.

Function

The flame scanner system **2** is based on the UV-VIS spectral procedure and on the IR flame radiation analysis. Both spectral ranges are detected separately by a binary detector and evaluated selective by means of an automatic pre-amplifier circuit and integrated frequency control. This achieves an optimum spectral utilization of the high-frequency flame modulation of the primary combustion zone, thus avoiding suppression of the UV-VIS flicker frequencies, since the high energy IR radiation is processed separately. The generally undesired diffused light of the flame serves for the fuel specific control of the flame scanner.

The binary detector consists of a lead sulphide carrier with a vapour deposited silicon photo element. The si element serves as an UV filter for the PbS photo element arranged behind it on the same optical axis, and blanks out the detrimental short waves which otherwise would cause problems with the PbS detectors. Due to a compensation controlled by the ambient temperature, the working point of the scanner is stabilized

and the spectral linearity is maintained. In a mixed stage the signals of both photo elements result in a bus signal of a very large spectral bandwidth. Spectral traversal of the flame provides information about oxidation of the fuel thus offering information about the flame quality.

The signals of the uv-vis and ir radiation intensity can be adjusted separately to achieve full evaluation of the flame.

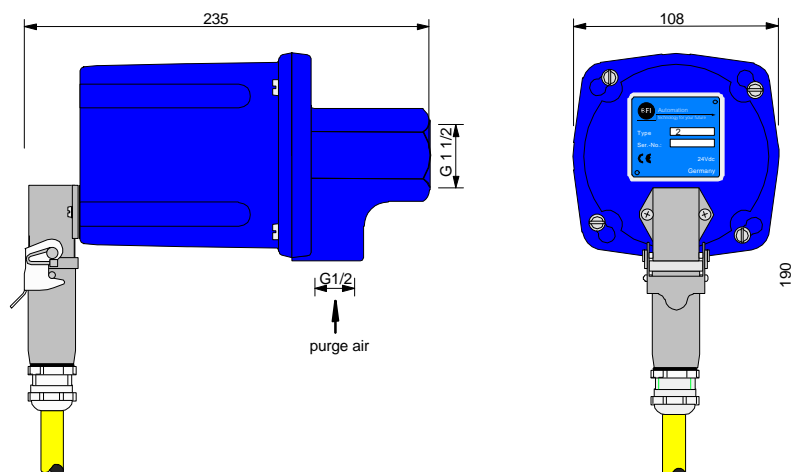
The on-load connected bandpass has the effect that the typical modulation of flame radiation of the primary combustion zone is utilized for the output signal only.

The further functional groups achieve the conversion into digital information

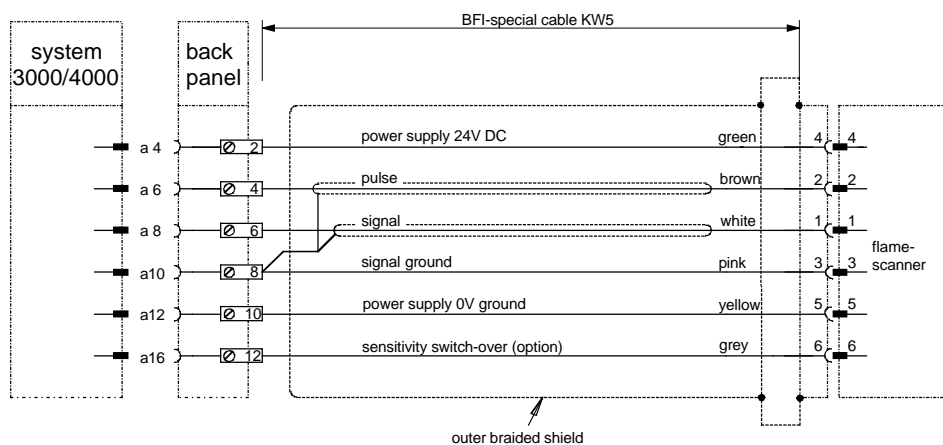
acc. to standard with highest fail-safe features.

By means of the BFI special cable it is possible to realize a length of up to 1000m without having to use a further driver unit between flame scanner and amplifier.

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.

Two spectral ranges for separate adjustment

Spectral sensitivity 350 to 2700 nm
Viewing angle 1°, 2° oder 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 +60 °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 Nm³/h
or
Purging air pressure 0,02 bar over combustion chamber inner pressure
Weight approximate 1kg
Part no. S 507.0

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

Edition: 07/98, Right of technical modifications reserved.