BFI Automation
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SYSTEM 3000 / 4000

COMBUSTION SENSOR
2.5 MS

TECHNICAL DESCRIPTION

EDITION : TB 2.5 MS-SZ1

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Combustion sensor
2.5 MS

- **For flame monitoring and slow combustion control in waste incineration plants**
- **TÜV and DIN-DVGW approved**
- **Type of Protection IP 65**
- **Approved in acc. to DIN-DVGW and DIN CERTCO**

Application

The combustion sensor **2.5** is a new concept of a wide-band flame monitoring sy stem with the application of a two-colour sensor connected to an electronioc automatic pre-amplifier circuit and an automatic frequency controller which systemati-cally exploits the characteristics of the flames.

Function

The two-colour sensor is based on a perforated silicon photo-electric voltage front element (Si) and a cooled lead sulphide (PbS) photoresistor installed behind it.

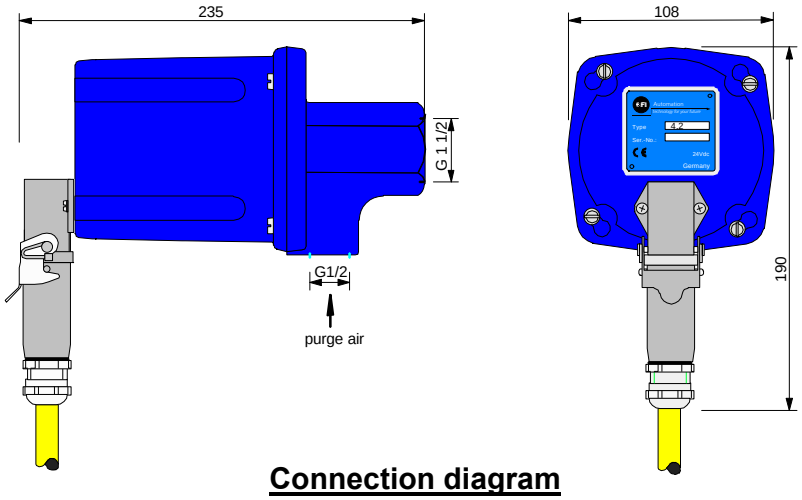
This two-colour sensor covers the spectral range from 350 to 3.300 nm. Te Si-element acts at the same time as a filter upstream of the PbS photoresistor arranged behind it on the same optical axis. By this filter the detrimental short waves detecting the PbS-element are blanked out as well as the frequent problems which formerly occured during the application of the single PbS photoresistors. After amplification, the signals of both sensors result in a bus signal of a very large spectral bandwidth which extends from the UV-A range through the visible range to the long-wave IR rate.

lt is possible via a signal mixing stage to set the sensivities depending on the combustion process using the trimmers allocated to the silicon and lead sulphide-operated channels
The power for the combustion sensor is supplied via the plug connection pins 4 and 5
(24 DC).

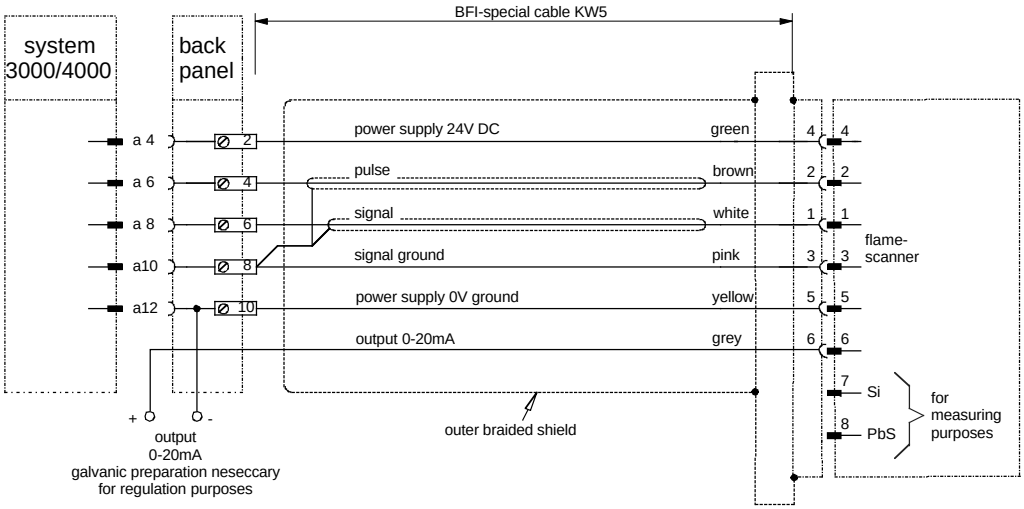
The system clock pulse for the electronic surveillance of the entire flame monito-ring unit is supplied via the connector pin 2.
Especially for the slow combustion surveillance in waste incineration plants, the **2.5** additionally has been fitted on the silicon side with an output signal of 0 -20 mA proportionally depending on the radiation intensity. This signal can be connected to pin 6 of the harting plug. By this procedure, for the first time, the monitoring of the flame not only refers to the dynamical component of the combustion, i.e. the variation depending on the modulation and the frequency, but also the stationary component, i.e. the constant radiation.
In the area of low combustion smouldering glow heat residuals (hot spots ?) can be detected and subsequent unburned materials. By increasing primary air, these might be initiated to repeated combustion (slow combustion) which starts a modulated flame signal. This digitalised flame signal is switched via the plug connection pin output 1 and fed to the flame amplifier module **3001** in the form of a pulse telegram. Depending on the intensity and for the duration of this signal, the quantity of air can be adjusted. In the absence of signais, the quantity of air may be reduced to a minimum specifically adjusted to each plant.

According to standards the combustion sensor **2.5** is delivered with an angle of indination of 6° for the detection of major areas. If either thickness of walls or built-in angels do not allow corresponding conditions of visibility, the combustion sensor can be applied with a specificly developed telesoope.

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.
UV-semi-conductor, adjustable sensivity, selective modulation filter.

Spectral sensitivity	350 to 2700 nm (standard)
Viewing angle	6°
Operating voltage	24 V DC, inner electrical isolation
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 Nm3/h
or	
Purging air pressure	0,02 bar over combustion chamber inner pressure
Weight	approximate 1kg
Part no.	S 507.5 MS

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