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H&S SENSORTECHNIK

Fuji Kogyo Corporation

Japanese quality | Made to last
High temperature | High reliability

Hot Surface Igniter (HSI)

All advantages at one glance

Hot Surface Igniter (HSI)

HSI for Fuel cell SOFC/PEFC high temperature systems
Flame sensor / temperature sensor for hydrogen combustion

1200 °C

SNx-1 D.8xL40mm

SNx-2 M18 thread

SNx-3 D.14xL30mm

1300 °C often used for fuell cell

SNx-4 D.19xL50mm

SNx-5 M16 thread

SNx-6 32mm round

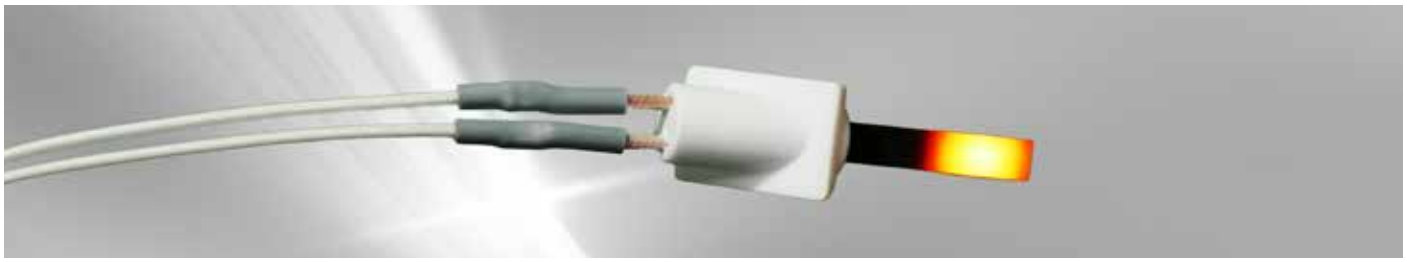
Worldwide customers made the choice of FKK for several reasons

- High reliability and quality: over 90,000 hours (nearly 10 years) of rated lifetime, Japanese quality
- Very high temperature: 1.400 °C in 30 seconds
- High pressure resistance and very low temperature at lead wire junction (below 100-200 °C)
- Power rating: 45-75 Watt
- Competitive cost: by providing major fuel cell makers, we achieved high cost/quality performance
- Long experience in fuel cell industry (12 years of production)

All advantages of silicon nitride PTC sensor

- Can be used not only as flame detection sensor but also as flame temperature sensor
- Very robust: chemically non-sensitive and high temperature resistant
- No degradation in resistance vs. life time
- Long lifetime even in direct flame
- Linear correlation of signal with temperature
- Low mass inertia (quick response)
- Order made body, flange and cable production is easy

2 in 1



6s to 1000 °C

High sealing property

H2 ready flame sensor

Long rated lifetime

Comparison with UV or IR sensors:

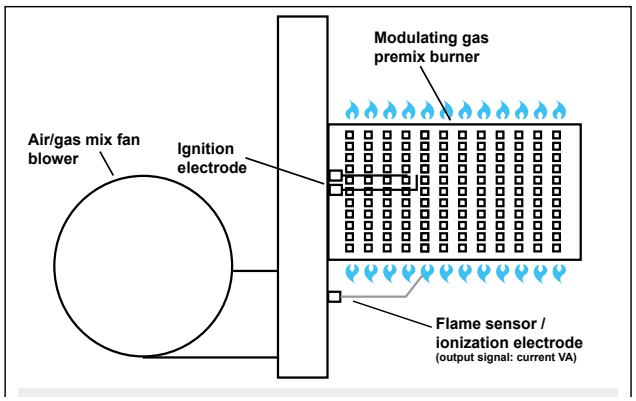
- Relatively inexpensive compared to UV or IR sensors
- Passive use of the PTC property (measuring resistance variation)
- No optical view or window required, unlike UV/IR sensors. The detection occurs directly in the flame
- No problem with steam or vapor blocking UV sensor
- Constant signal that does not decrease with lambda (air/gas mixture), unlike UV/IR sensors
- Does not create false flame detection as UV sensors may do. Can be certified as Class C construction

WE CREATE YOUR SOLUTION

Fully customizable solutions available

SNx Ceramic igniter/sensor applications in hydrogen combustion systems

Diagram of a conventional gas burner



Only 30 %
Gas / H2 mix is possible

Our solution

Diagram of a H2 100 % ready gas burner with SNx sensor (sensor function only)

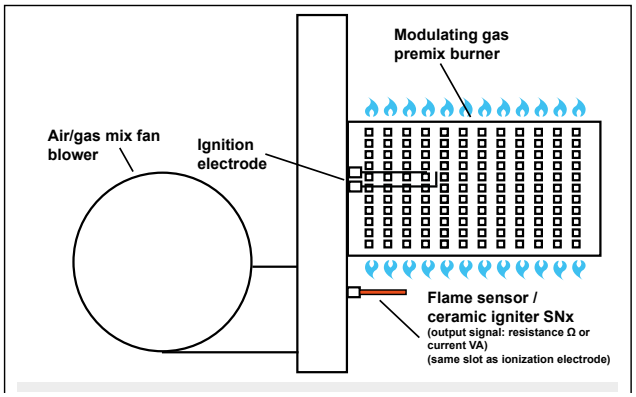
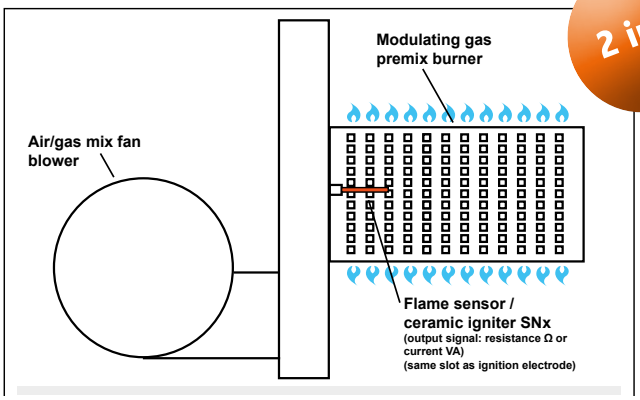


Diagram of a H2 100 % ready gas burner with SNx sensor and igniter 2 in 1



H2 100 % ready gas burner

References

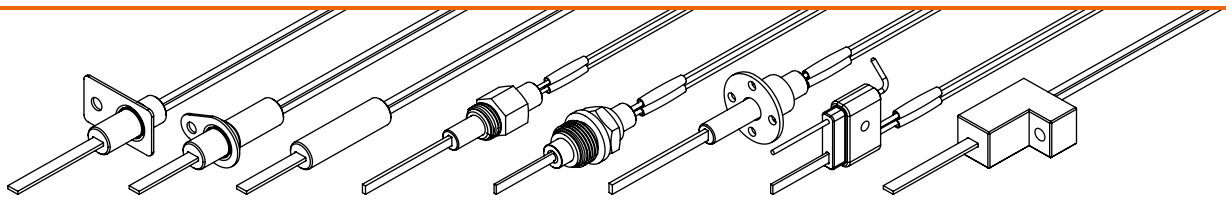
- Osaka gas Ene- Farm
- Panasonic Ene-Farm
- Toshiba fuel cell
- Honda fuel cell
- Tokyo gas fuel cell
- JX Eneos fuel cell

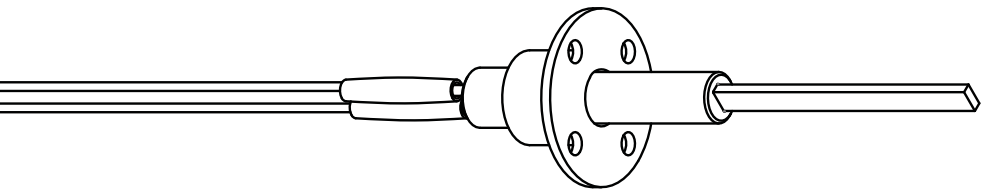
Application

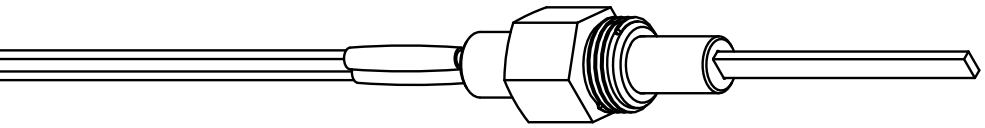
- Igniter for gas pre-heating
- Igniter for start-up burner
- Igniter for off-gas burner
- Igniter for cathode air preheater
- Igniter for SOFC/PEFC reformer high temperature burner
- Flame sensor in 0~100 % H2 mix
- Temperature sensor

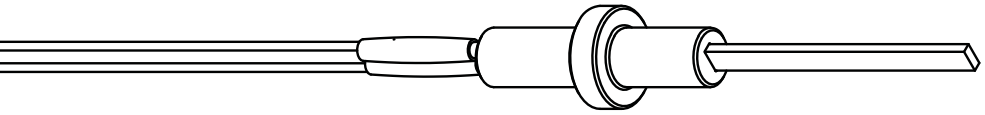
Systems

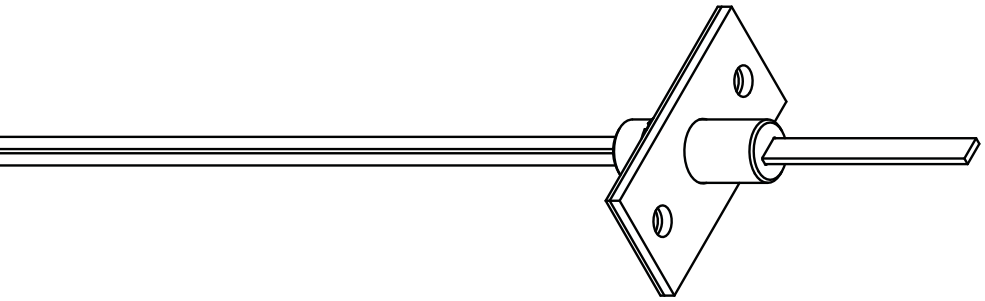
- Micro CHP : SOFC / PEFC
- Fuel cell back-up power
- Hydrogen burner
- H2 reforming unit
- H2 boiler











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