

## Application Guide

### GENERAL INFORMATION



The Raychem TraceTek Fast Fuel Sensor (FFS) is designed to quickly detect hydrocarbon fuels floating on water or collecting in a sump. The probe ignores the presence of water, but reacts to a thin film of fuel floating on the surface. In most cases, the TT-FFS will reset when removed from contact with the spill and the fuel is allowed to evaporate.

Reaction time for the probe is typically less than a few seconds for light or middle weight fuels such as gasoline, jet fuel, and diesel. It is also responsive to crude oil and some heavier weight fuels and heating oil, but becomes progressively slower as the fuel viscosity increases and the volatility decreases.

The TT-FFS is available in two lengths with multiple lead lengths and connector options. The standard product is intended for indoor installations while the water resistant version TT-FFS-WR is designed for outdoor and high humidity or water immersion applications. Refer to the TT-FFS & TT-FFS-WR Data Sheet (H57977) for specific information.

### Design Features

- Fast response to minimal amounts of spilled fuel
- Can be reset for multiple use
- Compatible with entire range of Raychem TraceTek Instruments
- Up to three TT-FFS sensors can be used with modular branch connectors on a single Raychem TraceTek Locating Alarm Module
- Can be used with TT5000 Sensor Cable to form hybrid cable and probe leak detection systems
- Suitable for installation in Class I, Div. 1 (Zone 0) area locations with appropriate safety barrier
- Available with or without Raychem TraceTek metal connector
- Rugged polypropylene housing for vertical mounting in sump or pipe stand

### Reset Procedure

See TT-FFS Care and Cleaning Instructions (H58307)

### Conditions of safe use

- The plastic enclosure poses a potential electrostatic hazard; do not rub or use solvents, clean only with a damp cloth.
- This equipment may not be able to withstand a 500-V isolation test between the circuitry and the monitored medium: this should be taken into account during installation.

## ELECTRICAL PARAMETERS FOR HAZARDOUS AREAS

$U_i = 15 \text{ V}/28 \text{ V}$   
 $I_i = 300 \text{ mA}$   
 $P_i = 1.125 \text{ W}$   
 $C_i = 0.24 \mu\text{F}$   
 $L_i = 0$

Refer to the Zener Barrier Application Guide (H54559) for more information.

### GENERAL NOTES – DO'S AND DON'TS

DO	DON'T
<ul style="list-style-type: none"> <li>• Connect sensor only to Raychem TraceTek modules</li> <li>• Observe color code when connecting sensor wires (Red to Red, Black to Black, etc.)</li> <li>• Mount sensor in the vertical position in a sump or trench where it will contact leaks</li> <li>• Seal the wire connections properly with the included kit components</li> <li>• Make sure sensor slots are clear</li> </ul>	<ul style="list-style-type: none"> <li>• Connect directly to any voltage source</li> <li>• Connect sensor to non-Raychem TraceTek equipment</li> <li>• Drop sensor or cause it to be mechanically shocked</li> <li>• Remove the protective screen or poke objects into the slots</li> <li>• Expose sensor to contaminants such as pipe dope, PVC cement, solvents, or dirt</li> <li>• <b>⚠ WARNING:</b> The FFS can be damaged if immersed in water and the water freezes. The sensor must be removed from the water prior to freezing (i.e. by draining the area or moving the sensor) or heating measures must be taken to prevent the water from freezing.</li> </ul>

### APPROVALS



IS/Class I, Div. 1, Groups A, B, C, D/T4; Class I Zone 0, AEx ia IIC T4  
 NI/Class I, Div. 2, Groups A, B, C, D/T4; Class I Zone 2, Group IIC T4



IEC 61508 Safety Integrity Level -2 (when used with TTC-1)  
 Ref BN/PTX/CB859/1580190/06/R/216/0

Baseefa11ATEX0221X  
 BAS21UKEX0508X  
 IECEx BAS 11.0111X

Ⓔ II 1 G Ex ia IIA T4 Ga (-40°C ≤ Ta ≤ +85°C) ( $U_i = 28 \text{ V}$ )

Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +85°C) ( $U_i = 15 \text{ V}$ )



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