



**Diamond
Controls**

Leak Detection & Trace Heating Systems

DATASHEET

WATER LEAK DETECTION



TT-FFS-WR

Fast Fuel Sensor

Protect wet environments from liquid hydrocarbon leaks with the accurate, fast-responding and water resistant TraceTek Fast Fuel Sensor.



Authorised Distributor

Gold Member

THE IMPROVED TRACETEK TT-FFS-WR

TraceTek Fast Fuel Sensors (FFS) are fast acting sensors designed to detect hydrocarbon fuel. The sensor ignores water but detects a thin film of fuel floating on the surface. Reaction time for the sensor is typically a few seconds for light or middle-weight fuels such as gasoline, jet fuel and diesel. It is also responsive to crude oil, heavier weight fuels and heating oils but becomes progressively slower as the fuel volatility decreases. In many cases the FFS sensor will reset after the sensor is removed from contact with the spill and the fuel is allowed to evaporate. Some heavier fuels require the sensor to be soaked in isopropyl alcohol or naphtha in order to clear the heavier fuel residuals.

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The improved water resistance of the TT-FFS-WR is a critical component of the TraceTek Fuel Leak Detection System. With the ability to be immersed in water, this TraceTek sensor protects pipelines, ports, tanks, bunds, airports, pumps, sumps and valves.

Two sensor types are available, both the TT-FFS-WR-100 and TT-FFS-WR-250 detect liquid hydrocarbon fuels such as refined products, naphtha, and heavy crude. Resettable and reusable in most applications. 100 and 250 mm active sensor length to accommodate variation in standing water, sumps and pits.

Design Features

- Fast response to small amounts of fuel
- Resets for multiple uses
- Easily tested
- Compatible with TraceTek instruments
- Intermix up to 3 FFS sensors with TT5000 sensor cable to form hybrid cable and sensor systems
- Wireless connection can also be achieved by using the Rosemount Mesh system
- Suitable for installation in CID1 (Zone 0) with appropriate safety barrier
- SIL-2 Rated Safety System Component

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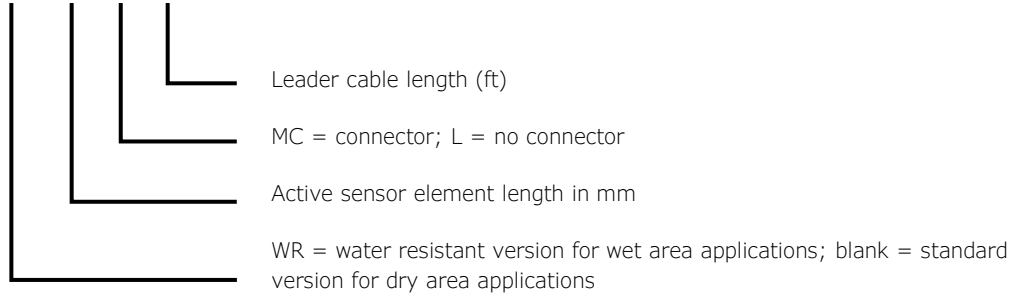
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TT-FFS-WR-250-MC-10



ORDERING INFORMATION

Standard Version

The standard version (TT-FFS sensor) meets the FM 7745 Approval Standard for Diesel Leak Detectors for detecting Diesel Fuel leaks in commercial buildings. It improves the safety of diesel generators used for back-up electrical power, reducing the risk of fire if a leak were to occur. The TT-FFS sensor may be used for the same purpose near oil storage tanks used to fuel boilers or other heating related equipment in commercial buildings.

Recommended Part Numbers for Dry Area Applications			
Without Connectors on Leader Cable		With MC Series Metal Connectors on Leader Cable	
Part No.	Catalogue No.	Part No.	Catalogue No.
P000000984	TT-FFS-100-L-1	P000000990	TT-FFS-100-MC-1
P000000985	TT-FFS-100-L-3	P000000991	TT-FFS-100-MC-3
P000000986	TT-FFS-100-L-10	P000000992	TT-FFS-100-MC-10
P000000987	TT-FFS-250-L-1	P000000993	TT-FFS-250-MC-1
P000000988	TT-FFS-250-L-3	P000000994	TT-FFS-250-MC-3
P000000989	TT-FFS-250-L-10	P000000995	TT-FFS-250-MC-10

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Water Resistant Version

The water resistant version (TT-FFS-WR sensor) is effective at detecting overflow leaks in hydrocarbon storage tanks in tank farms. It is also an ideal solution for monitoring hydrocarbon contamination on water or in sumps using a float assembly.

Recommended Part Numbers for Wet Area Applications			
Without Connectors on Leader Cable		With MC Series Metal Connectors on Leader Cable	
Part No.	Catalogue No.	Part No.	Catalogue No.
P000002304	TT-FFS-WR-100-L-10	P000002306	TT-FFS-WR-100-MC-3
P000002289	TT-FFS-WR-250-L-10	P000002305	TT-FFS-WR-100-MC-10
		P000002303	TT-FFS-WR-250-MC-3
		P000002290	TT-FFS-WR-250-MC-10

ACCESSORIES

Part No.	Catalogue No.	Product Description
P000001040	TT-FFS-MOUNTING-BRACKET	Stainless steel L-shaped mounting bracket to hold FFS onto floor
P000001048	TT-FFS PROBE TESTER	TT-FFS series hand held, battery powered fast fuel sensor test unit
1244-004251	TT-FFS-FLOAT-1M	TT-FFS series float assembly 1 meter long
1244-004252	TT-FFS-FLOAT-2M	TT-FFS series float assembly 2 meters long
P000001142	TT-FFS-EEC-100	TT-FFS-100 series extreme environment cover for added protection from dirt, sand, etc
P000001143	TT-FFS-EEC-250	TT-FFS-250 series extreme environment cover for added protection from dirt, sand, etc

PRODUCT CHARACTERISTICS

External diameter	1 inch (25.4 mm)
Color	Orange
Tube material	Polypropylene with static charge reduction additive
Leader cable	4 x 22 AWG, polyurethane jacketed, fuel resistant
Connector	RAYCHEM Tracetek "MC" series compatible with all RAYCHEM Tracetek MC components and cable Note: FFS is wired in "End Termination" configuration

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OPERATING ENVIRONMENT INFORMATION

Operating/storage temperature in dry areas	-40°F to 185°F (-40°C to 85°C)
Operating temperature of TT-FFS-WR water resistant version when immersed in water	33°F - 185°F (1°C - 85°C)
Salt water immersion	Tested for 30 days in 3% salt water at 20°C without failure or degraded response
Hot water immersion	Tested for 30 days in 60°C water without failure or degraded response
Acid resistant	24 hours in 10% H ₂ SO ₄ or 10% HNO ₃ without failure or degraded response

Note: The above water immersion test information is intended as a guide to the TT-FFS-WR sensor's water resistant capabilities.

RESPONSE TIME

Representative materials detected	Typical response time at 20°C
Gasoline	Less than 5 seconds
Jet A fuel	Less than 5 seconds
Diesel	Less than 5 seconds
Naphtha	Less than 5 seconds
MTBE (Methyl Tert-Butyl Ether)	12 seconds
Biodiesel (B100)	45 seconds
Crude oil	3 mins

Note: Time to alarm observed in the field is dependent on equipment configuration and field conditions.

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
IECEX BAS 11.0111X



Ex ia IIC T4 Ga (-40°C <- ta <- +85°C) (U_i = 15V)
Ex ia IIA T4 Ga (-40°C <- ta <- +85°C) (U_i = 28V)

Important: All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application.

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