

TD-4100XD

HYDROCARBONS IN WATER



Now available with standard E09 Electronics Package and standard EZ Access Flow Cell

The TD-4100 XD is a ruggedized, continuous on-line fluorescence based oil in water monitor. The XD is designed specifically for offshore/onshore oil production, refining, petro-chemical, mining, and other industries that require robust on-line hardware for severe duty and hazardous area locations. The monitor is skid mounted and constructed of 316 stainless steel, including an external keypad, for operation in corrosive environments.

The TD-4100 XD detects and measures crude oil, refined fuels, fuel oils, lubricating or hydraulic fluids, and aromatic solvents in water. Detection limits range from low ppb ($\mu\text{g/L}$) to high ppm (mg/L).



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Continuous On-Line Monitor

Continuous on-line monitoring with the TD-4100 XD provides the most responsive feedback loop for measuring hydrocarbons in water. Continuous monitoring is reliable, effective, and recognized for its ability to improve process management for treating, discharging and detecting hydrocarbons in water. Compared to laboratory grab sample analysis, on-line monitoring provides cost effective, continuous, remote, operator unattended measurement of hydrocarbons in water.

Non-Contact, Non-Fouling EZ Access Flow Cell

The TD-4100 XD does not have a glass flow cell. Hydrocarbons are detected in a stream of water falling through an open chamber; the water does not contact, dirty or foul the optical windows. A proprietary Air Curtain system keeps optical windows fog-free in hot water applications.

Low Maintenance

The instrument is stable within 10% over 6 months. Other than sample line maintenance, routine maintenance involves changing a lamp twice a year in addition to changing the desiccant plug. System checks are easily performed with the CheckPOINT® solid standard.

Direct, Continuous Monitoring

The TD-4100 XD monitors a flowing water stream continuously. No chemicals, no pre-treatment, no mechanical manipulation or mixing of the sample is required to monitor hydrocarbons in water.

Accurate

The TD-4100 XD directly measures fluorescing hydrocarbons in water with accuracies that consistently correlate to regulatory lab methods in most cases.

High Sensitivity And Selectivity

Sensitive

BTEX, gasoline, diesel, jet fuel, crude oil, aromatic solvents and refined petroleum products are detected by the TD-4100 XD from low ppb ($\mu\text{g/L}$) to high ppm (mg/L). For example, the TD-4100 XD can detect 10 ppb of diesel fuel in water free of interfering compounds.

Selective

The TD-4100 XD continuously measures fluorescent hydrocarbons in water. Fluorescence occurs when a molecule absorbs light energy and emits light energy at longer wavelengths.

Effective Monitoring In Dirty Water

Fluorescence technology makes the TD-4100 XD resistant to interferences from turbid or dirty water that impact on-line UV, IR absorption, or light scatter instruments. Most substances absorb light, but few fluoresce; if a substance does not fluoresce at the specific wavelengths for the monitored hydrocarbon, it will not interfere.

Operator Friendly

The TD-4100 XD with E09 is designed for easy operation. Simple on-board software controls alarms, 4-20 mA output, diagnostics and calibration. "Turner Designs Hydrocarbon Instruments is the recognized expert for oil in water monitoring technology."



TD-4100XD

SPECIFICATIONS



| | |
|------------------------------|---|
| Envelope Dimensions | 22" W x 25" D x 95" H [55.5 cm W x 63.5 cm D x 241 cm H] |
| Weight | 180 lbs [82 Kg] plus accessories |
| Power Requirements | 90 - 240 VAC, 50/60 Hz +/- 10%, 184 W, 1 ph, (24 VDC Optional) |
| Inlet Plumbing Requirements | ½" MNPT (standard) or ½" tube |
| Outlet Plumbing Requirements | 1-1/2" MNPT |
| Inlet Sample Flowrate | 2 - 3 US gallons/min [7.5 - 11.5 L/min], optional sample pump |
| Inlet Sample Pressure | 5 - 20 psig [34 - 136 kPag] |
| Outlet Sample Pressure | Atmospheric (standard) or optional sample return pump |
| Sample Temperature | 32 to 200 °F [0 to 93 °C] standard, higher temperatures optional |
| Ambient Temperature | -4 to 131 °F [-20 to 55 °C] standard, optional cold and high temperature protection |
| Operational Principle | Fluorescence |
| Detection Range | 1 ppb - 1000 ppm depending upon target hydrocarbon and water quality |
| Stability | 10% or better over 6 months |
| Response Time | <10 seconds continuous real-time response |
| Calibration | Multiple-point linear or non-linear, or uncalibrated. Holds two calibrations (one for each sample stream). |
| Field Validation | Via factory supplied CheckPOINT Solid Check Standard |
| Alarms | Baseline, early warning, high alarm, system-function, local display and audible tone |
| Alarm Outputs | Four user-settable, independently-protected dry contact relays |
| Communication | Standard E09 features with 4-20 mA isolated, 500 ohm impedance, selectable between Loop Powered and Instrument Powered, Ethernet. Optional HART, ModBus |
| Diagnostics | System failures reports to relay and local display |
| Security | Two level password protected, lockable cabinet |
| Electronics Cabinet | 316 stainless steel, NEMA 4X, IP 66 |
| Hazardous Area Options | North America: Class I Division 1, Class I Division 2, Groups B, C, D, T4; ATEX and IECEx: Class I Zone 1, Zone 2, other international codes. |
| Sample Pump | Optional |
| Cleaning System | Optional |
| Data Logger | Standard - see E09 Data Sheet |
| ISO Certifications | IMO 107 (49), 9001: 2008 Quality System |



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For Process &
Environmental
Oil In Water Monitors

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World Wide Sales and Service.



Contact us for:

Oil in water monitors and Hydrocarbon in water monitors for:

- Oil in Produced Water
- Gas Condensate in Produced Water
- Oil or Hydrocarbons in the following:
 - *Cooling Water recycle, reuse, or discharge*
 - *Steam Condensate Return to reuse or discharge*
 - *Bilge Water*
 - *Deck Drains*
 - *Slops Tanks*
 - *Mud Coolers*
 - *Intake protection*
 - *Membrane and advanced separation system intake protection*
 - *Carbon bed breakthrough*
 - *Applications Requiring IMO 107(49) Certification*

#1 Worldwide
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Oil In Water Monitors

Turner Designs Hydrocarbon Instruments, Inc. is the worldwide leader in the application of field portable, laboratory and on-line continuous process monitors for measuring and monitoring hydrocarbons in water. We are in the exclusive business of making laboratory, field portable and on-line instruments based in UV fluorescence technology.

Our staff of experts understands customer needs, problems and applications for monitoring petroleum hydrocarbons in water. Customer satisfaction is our first priority.

Turner Designs Hydrocarbon Instruments is unparalleled in fluorescence (UVF) expertise for the measurement of hydrocarbons in water and soil. Our customers enjoy the benefits of our worldwide exposure, product development and distribution network. We have more UVF instruments in service for oil in water measurement than all UVF competition combined.

The world leader in oil in water monitoring technology.

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