

# ANATEL PAT700 ON-LINE TOTAL ORGANIC CARBON ANALYZER



***Science and Risk-based  
On-line TOC Analyzer***

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EXCELLENCE IN PROCESS ANALYTICS

# ANATEL PAT700

*The ANATEL PAT700 is a science and risk-based on-line TOC analyzer that simplifies the application of process analytical technology in life science water system applications.*

*Designed as a fully compliant TOC analyzer that meets the requirements of USP <643> and EP 2.2.44 for TOC, USP <645> and EP 2.2.38 for conductivity and JP60.*

## Fully Compliant TOC Analysis

It is important to choose a TOC analyzer designed to fully comply with USP <643>, EP 2.2.44 and the JP60. The ANATEL PAT700 employs stop-flow technology to completely oxidize the water sample using UV light. Using proprietary algorithms, the ANATEL PAT700 calculates the total organic carbon (TOC) level based on differential conductivity. Most TOC analyzers rely on fixed-time oxidation that can lead to variations in results. The ANATEL PAT700 uses a stop flow analysis cell with dynamic end-point detection that ensures each sample is trapped, fully oxidized and its end point is accurately determined based on an oxidation curve fit determined through conductivity change.

The ANATEL PAT700 is the first on-line TOC analyzer to truly allow the transition of TOC analysis from the laboratory to the production floor, enabling real-time, on-line release of pharmaceutical waters.

All the features of the ANATEL PAT700 can be applied at a dedicated point of use, or with the addition of a handle, a portable version that can be conveniently moved throughout the high-purity water system for multi-point monitoring, troubleshooting and diagnostics.



## Benefits

- OASIS™ - Onboard, Automated Standards Introduction System, reduces user intervention and minimizes risk
- Integral color touch screen display for ease of use and access to information, configuration and analyzer operation
- Multiple inputs/outputs including separate analogs for TOC, temperature and conductivity, RS-232, serial printer, USB and Modbus TCP over Ethernet
- Integral heat exchanger – eliminates any need for external heat exchanger
- IP 56 stainless-steel enclosure improves protection from water and particulate exposure

- **Designed to simplify process analytical technology (PAT) in pharmaceutical operations**
- **Moves TOC analysis from the laboratory to the production area**
- **Provides new levels of up-time with reliability and diagnostics never before seen in an on-line TOC analyzer**
- **Ensures compliance in the most demanding regulatory environments**
- **Enables real-time, on-line release for pharmaceutical water systems**



## OASIS™ Technology

The ANATEL PAT700 incorporates OASIS™, an Onboard, Automated Standards Introduction System that simplifies standards tests and dramatically reduces operator intervention. With OASIS, the risks associated with infrequent standards tests can virtually be eliminated. Using industry-trusted RFID communications, the ANATEL PAT700 determines if the proper standards have been installed and will automatically store the standards data for reporting with the standards test results. There is minimal operator intervention to conduct a test and data entry errors are eliminated. With a unique scheduling feature, a standards test can be scheduled to run at a time that will not interfere with normal water system operation.

- Excursion sampling capability to enhance water system problem identification
- Dual UV lamps with UV Detect™ technology for improved reliability, diagnostics and user confidence
- Science-based, risk managing instrument designed to meet all requirements of USP, EP and JP, helping life science applications achieve PAT needs
- Configurable for stationary or portable use. Available in conduit or quick connect configurations for power and I/O

## Excursion Sampling

The excursion sampling with or without validation feature allows the installation of an empty sample bottle that will be filled with water from the system when predetermined TOC or conductivity values are exceeded. With OASIS, user intervention is not required to obtain the sample. Using excursion monitoring, water system problems can be diagnosed in a more timely manner to minimize the risk of producing off-specification water.



## UV Detect™ Technology

Along with the stop-flow technology that ensures complete oxidation, the ANATEL PAT700 offers advanced diagnostics, including UV Detect™ technology and excursion sampling. These diagnostics provide peace of mind that the analytical results can be trusted. HACH ULTRA is the only TOC supplier to offer UV Detect that continually monitors the critical UV source to confirm that the lamp is operating at an optimal output level.

Although only one lamp is required for oxidation, the ANATEL PAT700 is equipped with dual UV lamps. Should the current lamp's UV output drop below an optimal level the analyzer will automatically switch to the secondary lamp, ensuring continued, uninterrupted operation.

## Performance Specifications

<b>TOC</b>	Operating Range	0.5 to 2,000 ppb as Carbon	
	Display Resolution	0.1 ppb	
	Accuracy	±1 ppb or ±5%, whichever is greater	
	Repeatability	±0.3 ppb or ±1%, whichever is greater	
	Limit of Detection	0.5 ppb	
<b>Conductivity</b>	Conductivity Range	0.05 to 150 µS/cm (@ 25°C)	
	Display Resolution	0.01 µS/cm	
<b>Resistivity</b>	Conductivity Accuracy	±1% over full range (uncompensated)	
	Resistivity Range	0.2 to 18 MΩ-cm (@ 25°C)	
<b>Temperature</b>	Display Resolution	0.01 over full range	
	Available Modes	Temperature compensated to 25°C, or uncompensated	
	Ambient Operating Range	10 to 40°C (50 to 104°F)	
<b>Physical Specifications</b>	Measurement Accuracy	±0.4°C	
	Sample Water Range	5 to 95°C (41 to 203°F)	
	Display Resolution	0.1 over full range	
	UV Lamps	2, with UV Detect technology	
	Interface/Display	Color touch screen	
	Maximum Altitude	4,000 m (13,125 ft)	
	User I/O Wiring	Three, ¾-inch conduit openings or quick disconnect fittings	
	Standards System	Onboard, Automated Standards Introduction System (OASIS)	
	Dimensions	59.7 w X 22.9 d X 25.4 h cm (23.5 X 9 X 10 inches)	
	Weight	13.6 kg (30 lbs)	
<b>Compliance</b>	Sample Inlet Flow Rate Range	60 mL/min to 300 mL/min	
	Sample Inlet Pressure Range	10 to 100 psi (69 to 690 kPa)	
	Installation Category	II	
	Pollution Degree	2, IEC 61010-1	
	CE Compliance	EN 61010-1 and EN 61326	
	Safety Rating	ETL, conforming to UL 61010-1 and CSA 22.2 No. 61010-1	
	Enclosure Rating	Conduit version:	IP56
		Quick connect version:	IP46
	<b>Inputs/Outputs</b>	Analog Outputs	Three; opto-isolated
			Variables
Range			Configurable over 4-20 mA
Discrete Inputs		Alarm Level	Configurable: 2, 22 or last value
		Two; opto-isolated	
		Input One	TOC analysis start
Discrete Outputs		Input Two	TOC/Flow with Conductivity mode change
		Four; opto-isolated	
		Output One	TOC alarm
		Output Two	Uncompensated conductivity alarm
Power Input		Output Three	Analyzer error
		Output Four	TOC analysis start indication
		100 to 230 ±10% VAC, 50 W, 50/60 Hz	
		Serial RS-232C Output	ASCII format, eight data bits, no parity, one stop bit, 9600 baud
		Serial Printer Output	RS-232C interface, eight data bits, no parity, one stop bit, 9600 baud
	Compatibility	40-column serial printer	
	USB Output	Output to FAT memory stick	
	Protocol	Modbus TCP/IP	
	Interface Speed	10/100 Mbits/sec	

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