



EIE

**Distillation Process Analyzer
EIE-DPA-2A**

Distillation Process Analyzer



- ASTM D86 、ISO3405、IP123
- Advanced analytical methodology: The analyzer employs measurement and analysis methods compliant with the ASTM D86 standard for manual laboratory testing.
- Continuous control analysis is implemented using industrial PCs.
- The analyzer's innovative explosion-proof design features a large 270 mm viewing window and a high-resolution color TFT-LCD display screen.
- The entire design adopts a novel explosion-proof structure featuring the internationally popular large-window spiral-type explosion-proof door.
- Through the window and LCD display screen, establish human-machine interaction with the industrial PC using a remote control.

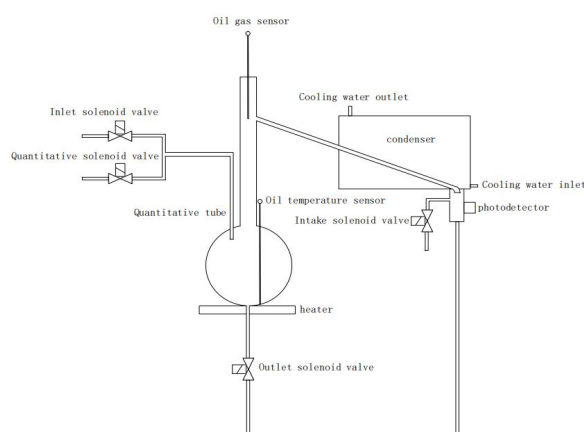


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Introduction

In the petroleum refining process and application of petroleum products, distillation range is a critical parameter for characterizing oil quality and application properties. It reflects the distribution of light and heavy components in the oil and represents the most frequently analyzed parameter with the highest analytical workload in refineries. Accurate and timely acquisition of this data enables production operators to promptly understand the distribution ratios and quality characteristics of various products within the refinery column, adjust parameters such as temperature, pressure, and reflux flow rate accordingly, perform precise component separation, optimize product profiles, achieve precise quality control, facilitate the production of high-value-added components, and ultimately enhance economic efficiency for refineries.



The sample collected from the rapid-loop sampling tube of the process pipeline enters the sample pretreatment system, where it undergoes sequential treatments including rapid-loop cooling, filtration, dehydration, degassing, impurity removal, precision filtration, pressure stabilization, and flow regulation. Under computer control, the sample is then precisely dosed into the distiller via a specialized quantitative component. The computer initiates a heating program that uses dedicated algorithms to regulate temperature of the target oil product in the distiller. Real-time monitoring tracks critical parameters—including temperature, pressure, and fraction yield—while displaying operational status and relevant alerts during



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analysis. Upon completion of the distillation process, the microprocessor processes and displays measurement results (e.g., initial boiling point, 5%, 10%, 30%, 50%, 70%, 90%, 95%, dry point, or final boiling point) on the analyzer's color LCD screen, transmitting data to the production plant's DCS control system via RS485 or 4–20 mA signal. After each analysis cycle, the distiller undergoes cooling and flushing before initiating the next cycle.

Technical Features

1. **Advanced analytical principles:** The analyzer employs measurement and analysis methods compliant with the ASTM D86 standard for manual laboratory testing, incorporating a series of effective techniques to ensure its suitability for operating under various industrial process conditions.
2. **Innovative explosion-proof design:** The entire unit adopts the internationally popular large-window spiral-type explosion-proof door structure, featuring an aesthetically pleasing appearance that facilitates operation, maintenance, and inspection. The explosion-proof rating has been upgraded to Exd II CT4, making it suitable for all hydrogenation units and fully meeting the safety requirements of refinery sites.
3. **Intelligent Electrical Control:** Utilizes industrial PCs to achieve intelligent closed-loop control of the entire system, featuring self-diagnostic capabilities, automatic parameter adjustment, and automated fault detection with alarm functionality.
4. **Large LCD display:** The analyzer's innovative explosion-proof design features a 270 mm-wide viewing window and a color TFT-LCD display system that visually shows instrument status and curves, with built-in historical data retrieval and parameter adjustment capabilities.
5. **Human-machine interaction feature:** Without opening the table door, users can interact with the industrial PC via the window and LCD display using a remote control to modify parameters, make settings, and perform other operations—highly convenient.



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The analyzer's innovative explosion-proof design features a large 270 mm viewing window and a color TFT-LCD display system that provides clear visualization of the instrument's operational status and curves.



The sample pretreatment system undergoes subsequent treatments including rapid cooling, filtration, dehydration, degassing, impurity removal, precision filtration, pressure stabilization, and flow rate stabilization.



Innovative explosion-proof design: The entire unit adopts the internationally popular large-window spiral-type explosion-proof door structure, featuring an aesthetically pleasing appearance that facilitates operation, maintenance, and inspection.



Human-machine interaction feature: You can communicate with the industrial PC using a remote control via the window and LCD display without opening the table door.



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SPECIFICATIONS

Standards	
ASTM D86 、 GB/T6536、 ISO3405	
Technical Details	
Measuring Range	0~400℃
Repeatability	Superior to ASTM, GB, and ISO standards
Reproducibility	Superior to ASTM, GB, and ISO standards
measuring period,cycle of measurement	Light oil: 20–30 minutes; heavy oil: 30–45 minutes; non-continuous
Product Flow Path	1 channel
explosion-proof	Exd II CT4
Electrical	
Power Supply	110-220VAC±10 % .50Hz
Maximum Power Consumption	1000W
levels of protection	IP54
Sample	
Quality	filtered through 50 μm membrane; viscosity ≤ 50 cSt
Consumption	25L/h
Sample injection pressure	Pressure between 0.1 MPa and 0.5 MPa
Sample injection temperature	<30℃
Utilities	
Instrument Air Consumption Rate	30L/h
Pressure at the instrument air inlet	0.2 MPa~0.7 MPa
Instrument Air Quality	Complies with Level 2 or higher as specified in ISO 8573-1
Cooling water	Fresh water free of impurities
Cooling Water - Temperature	<30℃
Cooling water inlet pressure	>0.3 MPa
Electrical data of the signal output	
analog output	4~20mA
MODBUS Interface	RS485MODBUS/RTU
Control Unit	
Main Control Unit	industry PC
Operating System	WindosXP

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control software	PACS
Use Interface	
Display	800×600 pixel TFT display
Keyboard	Infrared Wireless Keyboard
Connection	
Pipe Fitting	Swagelok 6mm/8mm; other fittings are available upon request.
Operating Enviornment	
Ambient temperature	Operate at 5°C to 40°C; store at-20°C to 60°C.
Ambient Humidity	Operate at relative humidity of 5%–80% without corrosion; store at relative humidity of 5%–85% without corrosion.
Product Size	
Dimensions (mm)	1100mm (W)*1735mm(H)*600mm (D)
Weight	250KG