

ATAC DISTILLAR

ON-LINE DISTILLATION ANALYSER

The ATAC Distillar is a completely automatic, on-line process analyser that measures any distillation point or points which can be determined by the laboratory methods, ASTM D86 and IP123.

- Correlates to ASTM D86 and ISO 3405-IP123 test methods
- Exceeds test method repeatability
- Accurate, reliable optical condensate level detection
- Fast analysis enables process optimisation



TYPICAL APPLICATIONS

Distillar is ideal for increasing yields, improving blending operations and controlling distillation columns to tight specifications in:

- Product blending
- Middle distillate monitoring

The unit offers a nitrogen purge option to reduce coking (and associated maintenance) on high-coking streams such as diesel and gasoils. It can measure single or multiple points, offering crude column control or multiple point finished product specifications.

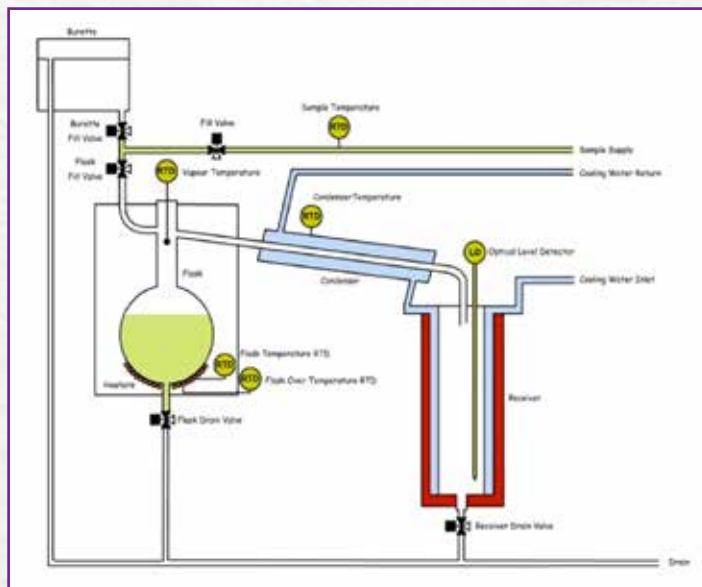


Figure 1: Distillar schematic

PRINCIPLE OF OPERATION

The analyser copies the standard laboratory test, ASTM D86/IP123, as closely as possible. This close similarity between the analyser operation and the laboratory test ensures excellent agreement at all points for all products.

Fresh sample is flushed through the analyser to cool all wetted parts to at least 20°C below the IBP of the product being analysed. The Distillar burette is then allowed to fill with sample and settle at a volume of 100ml. This 100ml sample is drained into a pre-cooled flask which is then heated electrically until the analysis is complete. Figure 1 shows a schematic of the Distillar in the 'Heat' phase.

During the heating period, the power to the flask heater is controlled to ensure optimum rate of recovery for the product sampled, as defined by ASTM. The vapour travels up the neck of the flask and flows into a water cooled condenser. The vapour temperature is measured by a temperature sensor in the neck of the flask.

The distillate is collected in a receiver after passing through the water cooled condenser. Percentage recovered is measured by means of an optical detector and the recovery level and vapour temperature are monitored and compared with pre-set analysis points. The test cycle ends when all the nominated analysis points have been found. Results are output as 4-20mA process signals.

Distillar is certified to ATEX standards and provides extensive facilities for user configuration via the RS232 input and remote standard PC.

MEASUREMENT OUTPUTS

The ATAC Distillar can measure the following properties of the sample being analysed:-

- Initial Boiling Point (IBP)
- Distillation Point
- Continuous Temperature
- Final Boiling Point (End Point) (FBP)
- Total Recovery
- Recovery Point
- Continuous Recovery

These are available as up to seven, self powered, 4-20mA fully isolated i.s. trend outputs. Distillar also provides five digital outputs; four digital inputs (via intrinsically safe circuits) are available for external control. Analyser parameters can be changed remotely by means of the serial RS232 link and Distillar informs the operator of analyser status by an in-built 28 digit alphanumeric display.

SPECIFICATIONS

Analyser performance	Range 0-400°C maximum; span 50-400°C, 10-100%		
Repeatability	Equal to or better than the laboratory test for any particular operating point		
Reproducibility	Within the limits as defined by the laboratory test for any particular operating point		
Cycle time	10-30 minutes typical		
Output signal	Intrinsically safe 4-20mA fully isolated Load impedance: self powered 350Ω maximum Span: 50°C or 10% recovery minimum		
Sample conditions required at inlet	Pressure: 0.5 to 1 barg Temperature: 20°C below expected IBP of the product being analysed; 45°C max. Flow: 20 to 30 litres/hour free of water and entrained solids		
Sample conditioning	Complete sample systems can be supplied to condition the sample as required at the analyser inlet.		
Sample disposal	The analyser sample outlet must be connected to a system which is at atmospheric pressure. Sample recovery systems can be supplied.		
Analyser vent	The analyser must be vented to atmosphere.		
Utility requirements	Power supply:	Voltage 110/120 or 220/240Vac ±10% Frequency 50 or 60Hz Consumption 600VA maximum	
	Instrument air supply:	Pressure 3-7 barg (dry) at 50 litres/hour <3 micron filtration	
	Cooling water:	Temperature: at least 25°C below the initial boiling point Pressure : <7 barg Consumption: 26 litres/hour	
Local display	A 28 digit alphanumeric LED display provides signal and diagnostic information. Standard display is in the English language.		
Standard connections	Sample in:	1/4" o.d.	Drain and vent: 1/2" o.d.
	Cooling water:	1/4" o.d.	Air: 1/4" o.d.
	Nitrogen (option):	1/8" o.d.	Power and signals: ISO 20
Explosion protection	The analyser is ATEX certified II 2(1) G Exd px [ia] IIC T3 for use in zone 1 hazardous areas. Certificate no. Epsilon 06 ATEX 2118		
Environmental protection	Whilst the analyser is weatherproof to IP55 and will operate in ambient temperatures within the range +5°C to +40°C, use of a weatherproof shelter is strongly recommended.		
Weight and dimensions	160kg Height 2200mm Width 900mm Depth 600mm		
Options	<ul style="list-style-type: none"> • Multi-stream applications (up to 4) • Voltage free contacts for external alarms • RS232/485 adaptor allowing remote MODBUS communications for parameter setup • RS485 simplex MODBUS communication • Nitrogen blanket/purge for flask • Local standby switch • Local air purge override • Metric adaptor kit for connection • Tropicalisation of circuit boards • Up to 7 measuring points with loop powered I.S. outputs 		

Analytical Technology & Control Limited

Broadway, Market Lavington SN10 5RQ, UK

T +44 (0) 1380 818411

F +44 (0) 1380 812733

E sales@atacgroup.com

W www.atacgroup.com



An Advanced Company



The precision behind the process

ATAC-DISTILLAR-001-R0-EN-NOV-2013