

SYSTEM

TA5: Online Titration Analyzer

TITRATION TECHNOLOGY FOR OPTIMIZED MEASURES

VFA (VOLATILE FATTY ACIDS) AND ALKALINITY ANALYZING

- Simple**
 - Measuring the substrate concentration by easy analytical devices
 - User Friendly Menu Structure
 - Touch-screen Interface
- Reliable**
 - Epoxy Powder Coated Rugged Cabinet
 - Two separate Compartments
 - (Electronics. Hydraulics)
- Cost Effective**
 - Low Maintenance
 - Affordable solution and Reagent usage



DESCRIPTION

The **TA-5 Analyzer** is an on-line sequential sampling analyzer that uses Delta-Phase patented titration approach involving multiple point pH measurements to yield timely and accurate analyses. The analyzers may be configured to perform VFA (volatile fatty acids) and Total Alkalinity analysis by using only two reagents.

Anaerobic digestion treatment of municipal and industrial waste water has gained considerable importance in the last few years. In terms of process stability, anaerobic digestion still lags behind aerobic biological treatment or physico-chemical processes. VFA (volatile fatty acids also called short-chain fatty acid) and Alkalinity are both very important parameters to assess the anaerobic digestion stability. The main alkalinity components in a digester are bicarbonate and VFA which are consumed and produced through the process steps. Bicarbonate buffers the system in the optimum pH range for the process to run efficiently. VFA buffers the system at low pH that is inhibitory to the biomass matrix in the digester.

Artificial distillation measuring VFA is low efficiency with unknown inspection error. Many investigated and established control systems depend on sophisticated equipment (e.g. GC-MS) for the measurement of substrate and metabolite (VFA) concentrations in the bioreactor. However, the use of such expensive systems is mainly limited to facility operators or research organizations. Therefore, there is a gap between largely uncontrolled operation and complex process control using precious equipment. On-line titration of the VFA concentration is a promising method to bridge this gap.

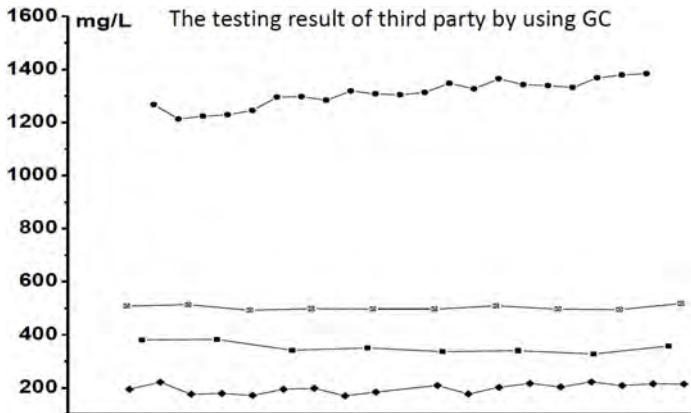
The TA-5 Analyzers are cost effective solution. Connections to the

sampling system and reagents is straightforward and simple. Factory calibration ensures rapid installation for immediate operation. The standard unit may be affixed to a panel using common hardware. Bench top installation is available as an option. The included software is highly intuitive and allows ready access to the operating parameters and data. User customization is accomplished via the brightly lit touch screen panel.

Two separate and lockable rugged enclosures allow easy maintenance and ensure worry-free operation. This modular design keeps the electrical components in the top isolated from the "wet chemistry" titration bench on the bottom. In the unlikely event of a liquid leak, the electrical components are kept high and dry. Such attention to detail is found throughout the design of the TA-5.

The TA-5 Analyzer home screen displays the measured parameter, the status, % reagent volumes, time and menu choices. The on screen HELP menu includes information on Start Up, Shut Down, Start/Stop Commands, Calibration, Function List, Programming, Maintenance and Troubleshooting. Outputs include 4 Alarm Relays and two 4-20 mA channels. Standard USB port is convenient for customers to access data and optional built-in wifi has the potential ability to connect internet or any intelligent terminals like iPhone, iPad or PC so make the remote calibration/configuration easily.

The TA-5 Analyzer can be used for municipal or industrial waste water treatments, bio-gasification, Biopharming and brewing. Alkalinity is valuable parameter for raw water in water supply plants, also for boiler water monitoring.



	Average	RSD
kitchen waste water Acidification	1300.6mg/l	3.9%

1# influent of WWTP	498.0mg/l	8.8%
2# influent of WWTP	351.3mg/l	5.3%
Anaerobic process of WWTP	197.6mg/l	8.9%

SPECIFICATIONS

Method	Acid-base titration	Analog outputs	4~20mA × 2, optional HART
Measuring range	VFA (Acetic acid): 0~100ppm, 500, 2000ppm Total Alkalinity(CaCO ₃): 0~500ppm, 5000ppm Units: ppm, mg/L	Digital outputs	RS485 Modbus USB 2.0 wifi
Accuracy	±10% of reading	Alarms	2 configurable relays
Repeatability	±5%	Dimension	900mm×380mm×210mm
Zero drift	<5% of reading per Month	IP rate	IP55
Range drift	<10% of reading per Month	Sample requirement	
Measuring cycle	10min	Normal Flow	60mL/min
Operating Temp.	5~50°C	Quick Flow	100~500mL/min
Display	LCD Touch screen Parameters, value and the state of analyzing	Inlet Pressure	<1Bar with peristaltic pump
Power	110~220VAC, 50/60Hz, 80VA	Outlet Pressure	Atmospheric
Connections	1/4" for sample, cleaning/calibrating and reagents, 3/8" for discharge and overflow		

Specifications subject to change without notice.

