

# Automatic Titrator

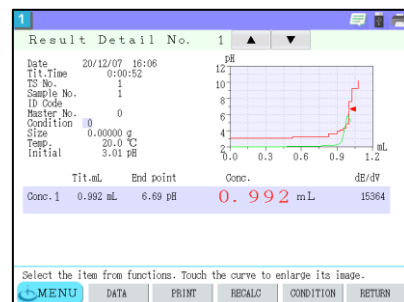
## COM-A19



# Automatic Titrator with Flexibility For How You Need To Use It

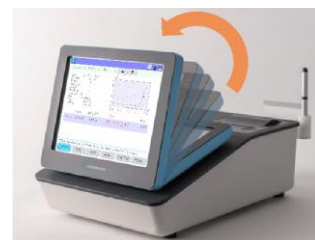
## Large Color LCD Touch Panel

A large 8.4" touch panel screen makes text input easy. Selecting functions from the menu is intuitive. The protective film can be replaced to protect from scratches and wear over the long term.



## LCD Display Adjustable in 16 Positions

Each user can adjust the angle to their liking. The position can be locked so that it will not move when the screen is pressed



## Two Types of Titration in Parallel

Add a titration station and stirrer to carry out two types of titration in parallel.



## Built-in Thermal Printer

Has a built-in thermal printer with a paper roll 58-mm wide. Simply insert the roll and close the cover to set it up.



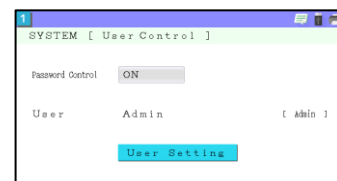
## USB/LAN Port

Approximately 9,900 results can be stored on a USB memory stick. With optional software, you can view the data on a PC or use a recalculation function. With a LAN connection, you can also view the data on a Web browser.



## User Authentication Settings

User restrictions can be imposed for improved security as well as the prevention of inadvertent changes to, for example, measurement conditions.



Multi-Control Unit  
MC-3000



Burette Head  
H-3000-20

Titration Station  
TS-3000



Stirrer  
K-3000T

## Status Indicator with 3 LED Colors

Colored lights allow you to confirm the status of operation from a distance. You will also be alerted to unexpected problems right away.



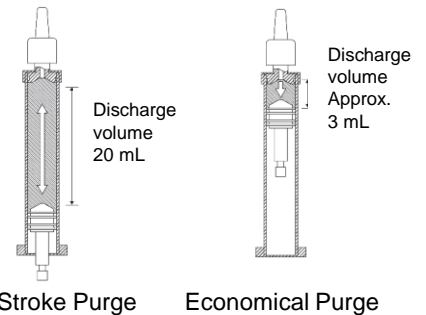
## Easy Burette Head Replacement

Simply slide toward you to remove. Can be replaced, together with the reagent bottle, using just one hand. With multiple burette heads, you can quickly manage different titrants simply by switching them.



## Economical Purge Function

Repeat discharging/charging at the top end of the syringe. Reagents can be replaced automatically, which greatly reduces waste fluid. The number of economical purge cycles can be set from 1 to 99.



## Forty Rotation Speeds Can Be Set

Rotation can be adjusted manually in fine increments shown by LED bars—it is easy to see and understand. (Four increments per bar)



## Standard Specifications

### COM-A19 Automatic Titrator

Item	Description
Parallel measurement	Up to two types of measurement can be performed in parallel (with optional titration station (and stirrer))
Titration method	Potentiometric titration
Control system	Microcomputer-assisted control system for drip volume and waiting time
Titration modes	Learn titration, Auto Inflection-point detection, Set-point detection, Set/Auto end point detection, Inflection point detection, Set-point detection, Inflection/Set point detection Cross-point (F, B, V1, V2) detection, TAN/TBN in petroleum products (Oil1/Oil2) Petroleum products neutralization value test (1, 2) Other functions: pH-Stat (1, 2), pH measurement, Dispensing, Calculation, pKa measurement
End point detection modes	Auto-detection using a second derivative (with smoothing function), Set-point detection, Cross-point detection
Number of endpoints detected	Up to 5 end points with a Learn titration file or linked method files Learn titration: 5 end points max. When conditions linked: 5 end points max.
Display	8.4" color LCD touch panel
Displayed content	Titration conditions, data per drip, titration results, titration curve, differential curve, list of titration results, statistics calculation results, condition settings display, real-time display of fluid temperature during titration (when thermistor electrode is connected).
Storage of titration results (per titration station)	Built-in memory: 100 results USB memory: (256MB or larger) maximum capacity of about 9,900 results
Settings input method	Key touch input (English guide displayed)
Sample data	Sample No.: 2 digits, ID code: 16 alphanumeric characters
Master file	Titration execution files: 51 files
Conditions files (all titration conditions together titration conditions summary)	51 files (method parameters, constant files, control mode files)
Number of linked conditions files	9 files (but up to 5 files of linked titration files)
Titration control mode files	Standard files: 51; neutralization value files in petroleum products: 51; Manufacturer settings modes (0–11), blank modes (12–19), user setting mode (20–50)
Constant files (concentration calculation constant settings parameters)	51 files K, L (constants), F (factors), M or N (molarity or normality), B (blank mL), S (sample size), T (temperature °C)
Sample files	99 files (Sample No., ID code, Master file and Sample size)
Auto input function	Function to automatically set constant parameters (blank, factor, etc.) for titration results Ability to designate conditions file for automatic input
Calculations	Concentration calculation, statistics calculations, pH automatic compensation
Branching function	After measuring the potential prior to titration, branching into maximum of two conditions files
GLP-compliant functions	1) Buret precision test, 2) Electrode check, 3) Burette use frequency (display/print), 4) Electrode maintenance (display/print), 5) Reagent level display and alarm
Printer	Built-in thermal printer (Paper roll width: 58 mm) Optional external printer: Dot impact printer PR-302B can be connected.
External input/output	RS-232C: 1 port (balance or computer connection), LAN: 1 port, USB flash memory stick: 1 port
Power supply	AC100-240V±10% 50/60Hz 60VA (MC-3000 only)
Dimensions/weight	235Wx400Dx250H (mm) Approx. 5.0kg (MC-3000 only)

### TS-3000 Titration Station

Item	Description
Burette capacity	Standard: 20 mL transparent syringe (with UV light shield protective cover) Can be replaced with 5, 10, 50 mL burette head (optional)
Forming system	Vacuum forming
Wetted part material	PTFE, hard glass, ceramic (*1)
Connecting tubes	φ2 x φ3 PTFE tube (brown)
Reagent bottle size	500mL
Valve switching	Automatic switching by ceramic lapping
Discharge speed/ Absorption speed	Full stroke: 50-second minimum (min. 25-sec. for discharge or absorption) Can be set from 50 to 250 seconds in 25-second increments (with a 20-mL syringe)
Minimum drip volume	0.00125 mL (with 20-mL syringe)
Burette accuracy	Relative accuracy: ±0.1% or less (with full capacity discharge from 20-mL syringe at factory settings (new)) Repeat accuracy: 0.01 mL or less (with full capacity discharge from 20-mL syringe, n=6 standard deviation)
Burette attachment	Up to 2 B-3000 Burettes can be attached simultaneously
Measurement unit attachment	Only the S-3000 can be connected
Auto cycler	Not available
Power supply	AC100-240V±10% 50/60Hz 50VA No power supply cable provided.
Dimensions/weight	120W x 340D x 470H (mm) Approx. 5.5kg (*2)

\*1: Hydrogen fluoride cannot be used.

\*2: When measurement unit and burette head are attached.

### K-3000T Stirrer

Item	Description
Beaker size	Up to 500mL
Stirring system	Magnetic stirrer
Stirring bar	Of PTFE (φ8 x 30 mm): 1 included
Rotation speed setting	Adjustable Initial speed can be set on the main controller unit
No. attachable to electrode holder	1) Electrodes: 2, 2) Thermistor electrodes: 1, 3) Burette tips: 3, 4) Bottle-top dispenser nozzle: 1
Power supply	DC12V (supplied by titration station)
Dimensions/weight	100W x 165D x 345H (mm) Approx. 1.5 kg

### Operating Requirements for Equipment

- Temperature: 5–35 °C
- Humidity: 45–85% with no condensation
- Atmosphere: No presence of acid, alkali, organic solvent gas, or rare gas
- Other: No inordinately high amount of dust or particles.  
No equipment nearby that generates strong lines of magnetic force.

Note: The color of the actual product may differ from what you see here due to printing-related issues.

Note: The appearance, specifications, and accessories may be changed without prior notice for the purpose of making improvements.

**Caution regarding safety:** Be sure to read the instructions before use, and use the equipment as intended.

#### Manufacturer

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