



**One-Touch Acid Value Measurement**  
**Hassle-free salinity measurement**  
**Easy maintenance**



# Auto Titration System

Automatic Potentiometric Titrator

Multiple Sample Changer

**AT-700 / CHA-700**

**KYOTO ELECTRONICS**  
MANUFACTURING CO.,LTD.

# Specifications – Auto Titration System

Number of samples	Up to 6
Sample container	250mL beaker, 200mL beaker, 200mL disposable cup [Option] 100mL disposable cup, 100mL beaker, 50mL beaker, 100mL tall beaker
Detection range	1) Potential: -2000 to 2000 mV 2) pH: -20.00 to 20.00 pH 3) Temperature: 0 to 100°C
Titration mode	Auto titration, Auto intermit, Intermit, Stat
Number of methods	Up to 20
Titration	Potentiometric (acid-base titration/redox titration/precipitation titration) / Photometric / Polarization / Conductometric
Titration form	EP stop method, Level stop method, Full
Special application	Measurement of electrode potential (pH, potential), Acid dissociation constant (pKa)
Cleaning	Dipping in beaker at fixed position / Shower cleaning (option)
Rinse solution	Pure water, alcohol, etc.
Stirring device	Propeller stirrer (stirrer, pre-processing stirrer not available)
Motion	Sample rack up-down motion, rotation of arm
Sequence setting	Set from Automatic Potentiometric Titrator
Sequence control	1) Auto: started by Automatic Potentiometric Titrator 2) Manual: operated from Automatic Potentiometric Titrator
Display	White LED-backlit LCD
On-screen display	Titrator: 1) Potential, titration volume / Measurement result / Titration conditions / Parameters 2) Japanese / English / Mandarin Chinese / Korean Multiple sample changer: LED (Power, Remote, Beaker) * LED for beaker at each position
Calculation	Concentration / Statistics (mean, SD, RSD) / Auto input of blank and factor Data memory 50 samples
GLP support	Registration of operator / Record of calibration results / Record of calibration of electrode / Verification of burette capacity
Burette capacity	20mL glass burette (standard) Optional 10mL and 5mL burette units available
Burette accuracy	20mL burette: ±0.02mL, repeatability ±0.01mL 10mL burette: ±0.015mL, repeatability ±0.005mL 5mL burette: ±0.01mL, repeatability ±0.003mL
Preamplifier	1) STD: for pH (mV) and mV (standard) 2) PTA: Optional amplifier for photometric titration (factory setting required) 3) POT: Optional amplifier for polarization titration (factory setting required) 4) CMT: Optional amplifier for conductometric titration (factory setting required)
External I/O	RS-232C <input checked="" type="checkbox"/> 2: for dot matrix printer, electronic balance, Data Capture Software (SOFT-CAP) USB <input checked="" type="checkbox"/> 1: for USB flash drive, thermal printer, keyboard, barcode reader, foot switch SS-BUS <input checked="" type="checkbox"/> 3: (1ch open) for multiple sample changer, APB, peristaltic pump PUMP <input checked="" type="checkbox"/> 1: for shower cleaning, optional sample drain
Expandability	Input terminal for temperature sensor to correct reagent volume, sensor Pt100, temperature reading accuracy: ±0.5°C (burette 1 only) Automatic piston burette: Up to 10 (incl. two built-in burettes)
Ambient conditions	1) Temperature: 5 to 35°C 2) Humidity: 85%RH or below (no condensation)
Power supply	1) Voltage: 100 to 240V ±10% 50Hz/60Hz 2) Power consumption: approx. 40W
Dimensions	365 (W) <input checked="" type="checkbox"/> 456 (D) <input checked="" type="checkbox"/> 650 (H) mm (not incl. tubing) 14.37 (W) <input checked="" type="checkbox"/> 17.95 (D) <input checked="" type="checkbox"/> 25.59 (H) in
Weight	Approx. 12kg (26.46 lbs)

\* Beakers, electrodes, electrode cables, and reagent bottles not included.



## Options

### Thermal Printer

DP-600



### Burette Unit (Additional)

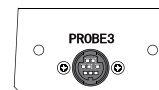
20mL: 12-03718-02  
10mL: 12-03718-01  
5mL: 12-03718



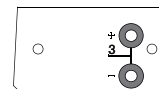
\* Reagent bottles not included

### Preamplifier

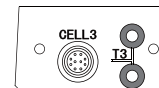
Photometric Titration Preamplifier / PTA  
Polarization Titration Preamplifier / POT  
Conductometric Titration Preamplifier / CMT



PTA



POT



CMT

### Dot Matrix Printer

IDP-100



### Software for Titrator

AT-Win



### Automatic Piston Burette

APB-610 / 600



Easy Operation, User friendly

Safety-conscious design

Remarkably enhances your work efficiency



### Features of Auto Titration System

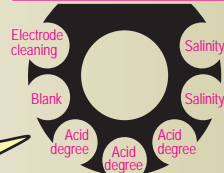
*No need to retrieve measurement parameters, just set the sample containers to the CHA-700.*

Parameters can be set for each table number (e.g., number 1 to 3 for acid value; number 4 to 6 for salinity)

Automatically performs measurement in the order of samples placed.

No need to set parameters for each measurement, which improves your work efficiency remarkably.

#### Examples of parameter setting



Just set the sample containers to the CHA-700.

*Unexpected samples can be easily measured between scheduled samples*

CHA-700 enables measurement of unexpected samples with easy steps. Just place the sample you wish to measure first in an open slot and reset other samples.

No key operation required.

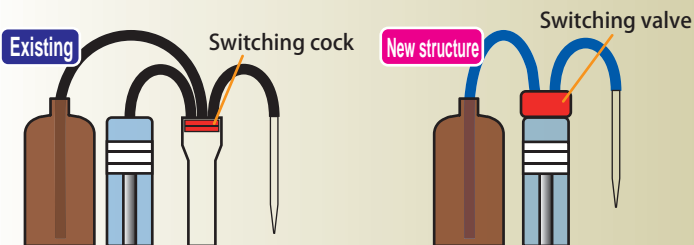
*Integrated design*

Compact and integrated design – AT-700 can be placed on the CHA-700. Installation space reduced to half of that of the existing model. Can be installed anywhere.

*Easy maintenance - new burette structure*

Eliminated "switching cock" for simplified structure.

Much less reagent remaining in the cylinder compared to existing types, which makes it much easier to replace reagents.



*High-accuracy burette of ±0.01mL*

Ensures equivalent accuracy of burette to that of high-end model.

Competition's equivalent models have burette resolution of 1/10,000, whereas AT-700 has 1/20,000.

KEM performs accuracy test for all burettes. You can count on our reliability.



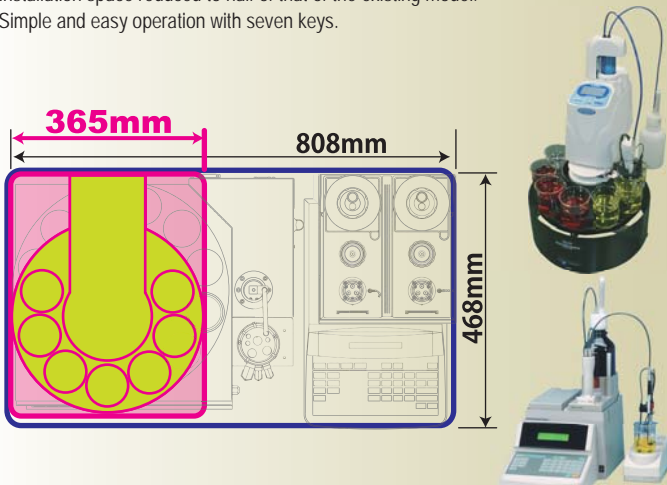
**1/20,000**

*Compact size even with two burettes*

Two newly-developed burettes can be put on this compact titrator.

Installation space reduced to half of that of the existing model.

Simple and easy operation with seven keys.



*More convenient with USB interface*

Easy to save or retrieve measurement data and parameters.

Various optional devices can be used such as numeric keypads and foot switches.



*Contamination-free with propeller stirrer*

Uses no stirrer rotors, which reduces the risk of contamination of foreign materials.

No need to collect stirrer rotors and less contact with chemicals. Safety and work efficiency are remarkably enhanced.

Can be used independently

Space-saving

User friendly potentiometric titration

## Automatic Potentiometric Titrator AT-700

AT-700 can be simply used as a standalone instrument. Compact size same as our current model burettes, but with functions of a titrator and automatic piston burette (up to two units). This space-saving model allows you to install the equipment wherever you like.



### Specifications

Detection range	1) Potential: -2000 to 2000 mV 2) pH: -20.00 to 20.00 pH 3) Temperature: 0 to 100 °C
Titration mode	Auto titration, Auto intermit, Intermit, Stat
Number of methods	Up to 20
Titration	Potentiometric (acid-base titration / redox titration / precipitation titration) / Photometric / Polarization / Conductometric
Titration form	EP stop method, Level stop method, Full
Special application	Measurement of electrode potential (pH, potential), Acid dissociation constant (pKa)
Display	White LED-backlit LCD
On-screen display	1) Potential, titration volume / Measurement result / Titration conditions / Parameters 2) Japanese / English / Mandarin Chinese / Korean
Calculation	Concentration / Statistics (mean, SD, RSD) / Auto input of blank and factor
Data memory	50 samples
GLP support	Registration of operator / Record of calibration results / Record of calibration of electrode / Verification of burette capacity
Burette capacity	20mL glass burette (standard) Optional 10mL and 5mL burette units available
Burette accuracy	20mL burette: $\pm 0.02\text{mL}$ , repeatability $\pm 0.01\text{mL}$ 10mL burette: $\pm 0.015\text{mL}$ , repeatability $\pm 0.005\text{mL}$ 5mL burette: $\pm 0.01\text{mL}$ , repeatability $\pm 0.003\text{mL}$
Preamplifier	1) STD: for pH (mV) and mV (standard) 2) PTA: Optional amplifier for photometric titration (factory setting required) 3) POT: Optional amplifier for polarization titration (factory setting required) 4) CMT: Optional amplifier for conductometric titration (factory setting required)
External I/O	RS-232C x 2: for dot matrix printer, electronic balance, Data Capture Software (SOFT-CAP) USB x 1: for USB flash drive, thermal printer, keyboard, barcode reader, foot switch SS-BUS x 1: for multiple sample changer, APB, peristaltic pump
Expandability	Input terminal for temperature sensor to correct reagent volume, sensor PT100, temperature reading accuracy: $\pm 0.5^\circ\text{C}$ (burette 1 only) Automatic piston burette: Up to 10 (incl. two built-in burettes) Multiple Sample Changer: CHA-700
Ambient conditions	1) Temperature: 5 to 35°C 2) Humidity: 85%RH or below (no condensation)
Power supply	1) Voltage: 100 to 240V $\pm 10\%$ 50Hz/60Hz 2) Power consumption: approx. 20W
Dimensions	141 (W) x 296 (D) x 383 (H) mm (not incl. tubing) 5.55 (W) x 11.65 (D) x 15.08 (H) in
Weight	Approx. 4kg (8.82 lbs)

\* Electrodes and electrode cables not included. Available as an option.

## Multiple Sample Changer CHA-700

Six sample changer for the AT-700. Convenient automatic measurement of multiple samples. Each sample is titrated by movement of the sample rack upwards and rotational movement of the sampling arm to each required beaker. Different from carousel of the existing changer. AT-700 can be placed on the CHA-700 for minimal workspace requirement.



### Specifications

Number of samples	Up to 6
Sample container	250mL beaker, 200mL beaker, 200mL disposable cup [Option] 100mL disposable cup, 100mL beaker, 50mL beaker, 100mL tall beaker
Cleaning	Dipping in beaker at fixed position / Shower cleaning (option)
Rinse solution	Pure water, alcohol, etc.
Stirring device	Propeller stirrer (stirrer, pre-processing stirrer not available)
Motion	Sample rack up-down motion, rotation of arm
Sequence setting	Set from Automatic Potentiometric Titrator
Sequence control	1) Auto: started by Automatic Potentiometric Titrator 2) Manual: operated from Automatic Potentiometric Titrator
Display	LED (Power, Remote, Beaker)
External I/O	SS-BUS x 2: for connecting AT-700 and APB PUMP x 1: for shower cleaning, optional sample drain
Ambient conditions	Temperature: 5 to 35°C Humidity: 85%RH or below (no condensation)
Power supply	AC100 to 240V x10% 50/60 Hz
Power consumption	Approx. 20W
Dimensions	365 (W) x 443 (D) x 315 (H) mm 14.37 (W) x 17.44 (D) x 12.40 (H) in
Weight	Approx. 8kg (17.64 lbs)

\* Enquire for other sample numbers.



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