AUT-801

Automatic titrator

Various functions support
quality control and research
& development

- Simultaneous titration and display of 2 series
- Enhanced functions for shortening titration time

DKK-TOA CORPORATION

AUT-801 is a titrator that meets a variety of applications, such as simultaneous two-line titration.

Simultaneous titration of 2 series

By adding an optional burette to the standard configuration (single system), two different titration such as neutralization and oxidation-reduction titration can be performed simultaneously. In addition, it can be used for various purposes such as simultaneous measurement of pH and neutralization titration.
In addition, two sets of multi-sample measurement devices (turntables) are connected, and can construct a two-line multi-sample simultaneous titration system.

Single System

A system without simultaneous based on standard configuration

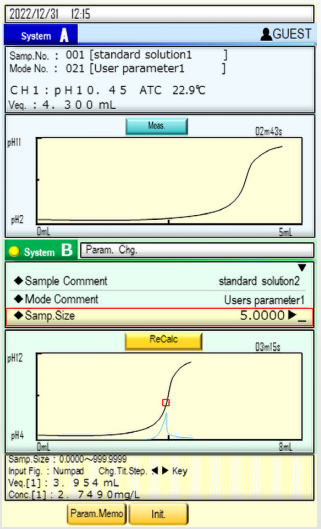
Dual System

Dual-series simultaneous titration system

In addition to the standard configuration, a titration burette (ABT-8), stirrer (ST-8), electrode, electrode stand, and electrode holder are required separately.

Supports simultaneous display of two lines

Easy-to-read color graphic

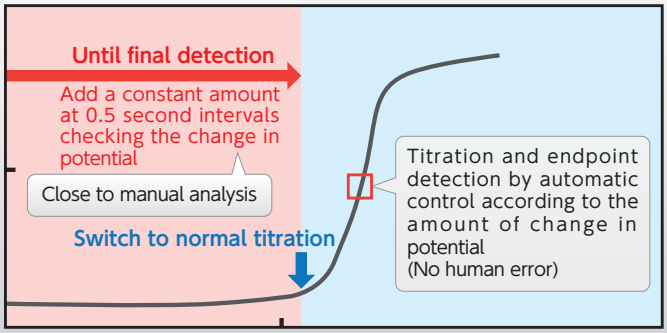


Simultaneous display and titration of system A and B are supported. Viewing data and reanalyzing is available from one system while measuring with another.

Various functions to support titration

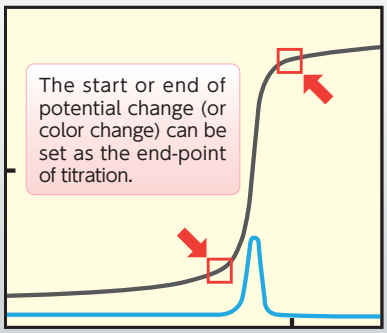
Support functions including optimization of titration conditions

Titration time shortened with an operation similar to manual analysis (semi-automatic mode)



Set point detection function

The set differential value can be selected as the end-point



Compatible with various titrations lineup of high-performance electrodes

- The pH electrode uses a pH glass electrode (Strong-pH) that is hard to break (excluding some electrodes).
- We offer various types of electrodes suitable for various titration methods, such as ORP electrodes for redox titration, silver composite electrodes for salinity titration, electrodes for non-aqueous titration, and EC cells for electrical conductivity titration.

Compatible with various titrations

- Equipped with 2 channels of pH/mV input as standard. Optional titration units (light intensity, polarization, electrical conductivity, potential difference) can be added to the 3rd and 4th channels.

Data Memory Function

- For a single system, 600 data can be memorized in the main body.

∗300 data for each system when multi-tasking in 2 lines (dual system) (300 x 2 = 600 data)

Data Print Example

```
System [A]
[Titration Result]
Sample No.002
Date            2023/  2/ 13 11:50
Titration Time           00:01:23
Operator Name       GUEST
Sample Size       1.0000

Mode No.          1
Neutral.tit.1
Electrode Ch.     1
Buret Ch.         1
Wait Time         0
Tit.Step          1
Tit.Unit          pH(ATC)
Valid Diff.1      400.0
Cont.P.1(Unit)    NoSet
Over Tit.Cnt.1    4
Fast Tit.         Normal
```

The built-in printer prints in English, Korean, and Japanese making it easier to understand the titration conditions.

Equipped with validation support function

- pH calibration history (up to 20 calibrations), burette capacity verification history creation function.

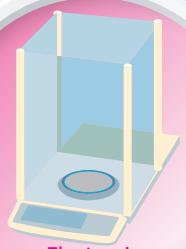
Various applications and labor saving through expandable system

Turntable TTT-710
(second unit)

Automatic Sampling
Device
AST-3210

Either one is connectable

Turntable TTT-710



Electronic
balnce

Titration Burette
ABT-8 or ABT-7
(Can connect up to 10 burettes
to a single AUT-801 main unit)

External printer
EPS-P30

USB or RS-232C

Electrode input
2ch available
by standard

Optional Detector Unit

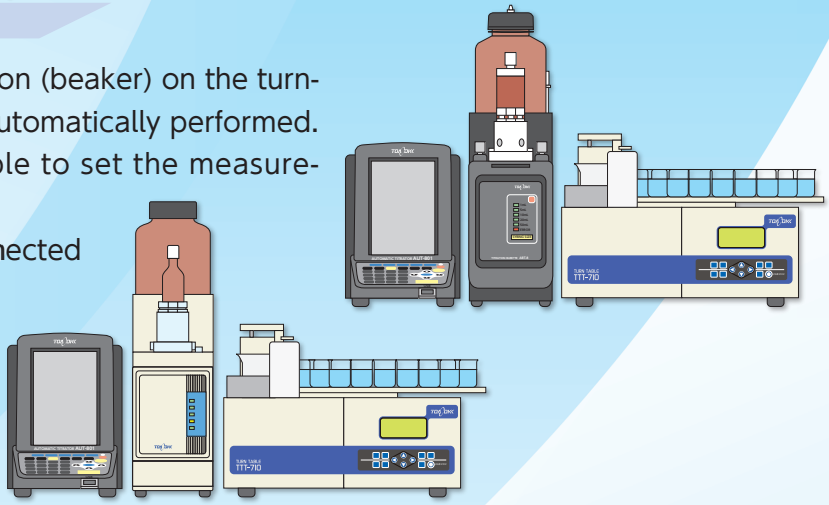
Photometric Titration Unit (FUT-8010)
Polarization Titration Unit (FUT-8030)
Conductivity Titration Unit (FUT-8040)
Potentiometric Titration Unit (FUT-8050)

Up to 2 types connectable
(2 types of same unit are connectable)

System Example

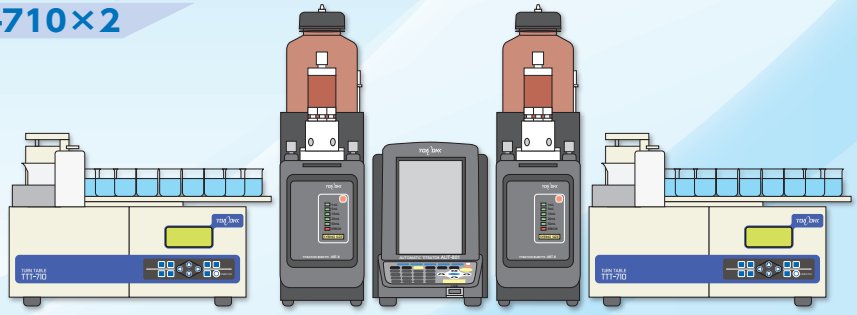
Multi-sample Automatic Titration System
AUT-801(single) + TTT-710

By setting the pretreated sample solution (beaker) on the turntable, titration of multiple samples is automatically performed. By using the flex function, it is possible to set the measurement conditions for each sample.
*The titration burette can also be connected to the previous model ABT-7.



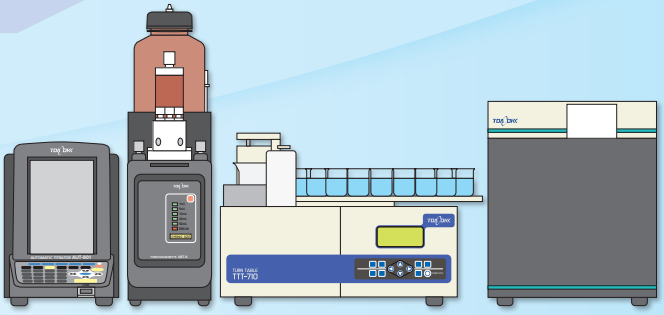
Dual Multi-sample Automatic Titration System
AUT-801(dual system) + TTT-710×2

Multi-sample titration is available for two different types of measurement item.
Also it can be utilized for upgrading the titration process function of the same samples.
*Titration burettes can also be connected to the previous model ABT-7.

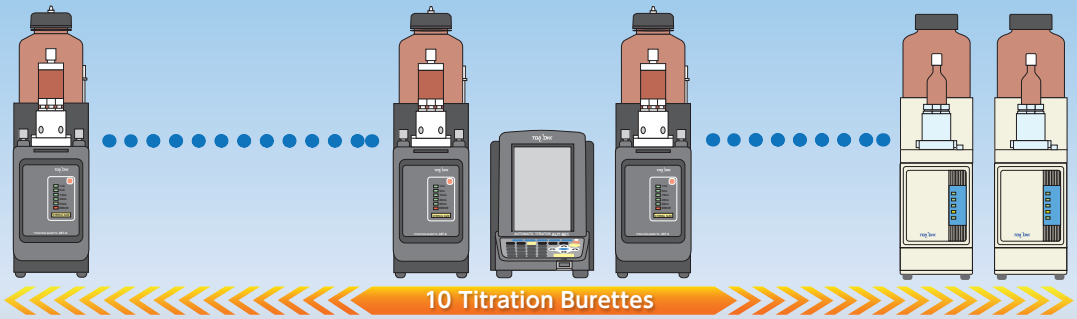


Multi-sample Automatic Sampling Titration System
AUT-801 + TTT-710 + AST-3210

By setting an appropriate amount of sample (beaker) on the turntable in advance, a series of processes such as sample weighing, dilution, reagent dispensing, titration, and washing can be automatically performed for multiple samples.



Titration burettes can be connected to one AUT-801 unit (maximum 10 units).



Connection between the current model ABT-8 and the previous model ABT-7 is available

Auxiliary Equipments

Supports continuous automatic measurement of multiple samples

Turntable TTT-710

Excellent Maintenance

Electrode cleaning tank and electrode storage tank placed on the front of the device. Maintenance of pipes, electrodes, etc. has become easier.

Various electrode cleaning mode

Equipped with shower cleaning with pure water as standard. Chemical cleaning, bubbling cleaning, and air blowing are available as options.

Equipped with a stand for the analyzer (optional)

In order to save space including the analyzer, we have prepared a dedicated analyzer installation stand.

Specification

Number of samples/ response beaker	12 samples	200mL beaker, 300mL tall beaker (Recommend:AGC Techno Glass or HARIO glass beaker)
	18 samples	100mL tall beaker (Recommend:AGC Techno Glass or HARIO glass beaker)
	36 samples	30mL beaker, 50mL tall beaker (Recommend:AGC Techno Glass beaker)
	60 samples	20mL dedicated beaker (Nichiden Rika Glass Co., Ltd. H-20)
	100 samples	20mL dedicated beaker (Nichiden Rika Glass Co., Ltd. H-20)
Stirring method		Standard:Magnetic stirring method　　Optional:Propeller Stirring method
Cleaning mode		① Pure water shower → Air blow ② Pure water bubbling → Pure water shower → Air blow ③ Chemical shower → Pure water shower → Air blow ④ Chemical bubbling → Pure water shower → Air blow ⑤ Chemical bubbling → Pure water bubbling → Pure water shower → Air blow ⑥ Chemical bubbling → Chemical shower → Air blow ⑦ Chemical shower → Air blow ⑧ Chemical bubbling → Pure water bubbling → Chemical shower → Air blow Note) ・Air blow cleaning is available in the optional air pump box at time of usage. ・Bubbling cleaning is available with optional air pump box and waste liquid valve at time of usage. ・Please contact us for details on chemical cleaning.
Cleaning time		0 to 9999 sec.
End sample detection		Detecting by end detector pin or end table number setting
Cleaning tank material		PP
Performance guarantee temperature		5 to 40℃
Power		AC100 to 240V　50/60Hz
Power Supply	Standard	AC100V at time of usage:Max. Approx.60VA AC240V at time of usage:Max. Approx.90VA
	Optional Connection	AC100V at time of usage:Max. Approx.100VA AC240V at time of usage:Max. Approx.130VA
Dimensions		Approx.440(W)×409(H)×391(D)mm (When the table plate is not attached)
		Approx.566(W)×409(H)×507(D)mm (When the table plate is attached)
		Approx.566 (W)×534 (H)×507 (D)mm (Maximum dimensions when operating)
Main unit weight		Approx.16kg (When the table plate is not attached) Approx.18kg (When the table plate is attached)

Standard Accessories

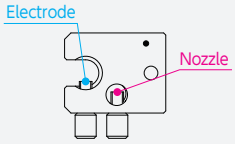
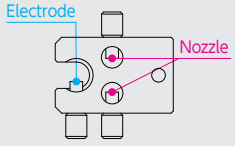
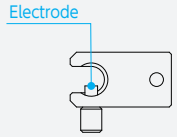
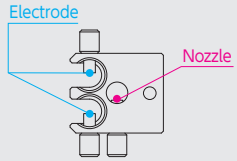
Table (Select one from 12, 18, 36, and 60 samples)	End detecting pin
	O-ring
Electrode cartridge (Numbers of samples/specify one type depending on the application)	Small hoffman pinch cock
	Power code
Cleaning water tank (with 10L solution level sensor)	2P･3P transmitter adapter
Waste solution tank (with 10L solution level sensor)	Disposal beaker(200ml)
Cleaning water tube (3m)	Instruction manual
Waste water hose (1.5m)	

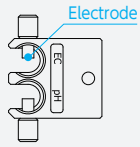
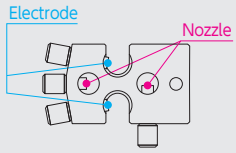
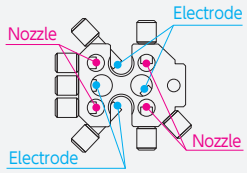
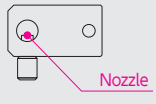
Option

Product name	Code
For connecting turn table RS-232C cable (2m) (for connecting AUT-801)	7703820K
Air pump box (for air blow)	7400560U
Air pump box (for air blow ＋ bubbling)	7401640U
Waste liquid valve for TTT-710 (pinch cock)	7401650U
Waste liquid valve for TTT-710 (solenoid valve)	7401660U
Propeller stirring unit (for 12, and 18 sample table) X:2, N:2	7401670U
Propeller stirring unit (for 36 samples) X:1, N:2	7401680U
Propeller stirring unit (for 60, and 100 sample table)* X:1, N:2	7401690U
Installation table for analyzer (for AUT-801)	7401710U

＊The electrode that can be used for 60 and 100 sample cables is only the pH electrode for trace amount.

Electrode Cartridge

Product name (Numbers of connectable electrodes / nozzles)	Code	Exterior
1CH cartridge 1 (X) (X mounting hole:1, N mounting hole:1) (12, 18, 36, 60, 100 samples)	7505010K	
1CH cartridge 2 (X) (X mounting hole:1, N mounting hole:2) (12, 18, 36 samples)	7505020K	
1CH cartridge3 (X) (X mounting hole:1) (12, 18, 36, 60, 100samples)	7506840K	
2CH cartridge1 (J mounting hole :2, N mounting hole :1) (12, 18, 36samples)	6597970K	

Product name (Numbers of connectable electrodes / nozzles)	Code	Exterior
2CH cartridge 2 (X) (X mounting hole :2) (12, 18, 36samples)	7505030K	
2CH cartridge3 (X mounting hole :2, N mounting hole :2) (12, 18samples)	6597940K	
Multi cartridge (J mounting hole :2, ION mounting hole :2, N mounting hole :4) (12samples)	6597980K	
Sample suction cartridge (N mounting hole :1) (12, 18, 36, 60, 100samples)	6597990K	

＊X, J, ION, N indicated on the propeller stirring unit and the electrode cartridge describes mounting electrodes and nozzels.
X:for X/R series electrode　J:for J/S series electrode　ION:single-purpose type ion electrode　N:nozzels

＊Beakers for each table plate
- 12 sample table plate :200mL beaker, 300mL tall beaker
- 18 sample table plate :100mL tall beaker
- 36 sample table plate :30mL beaker, 50mL tall beaker
- 60 sample table plate :20mL dedicated beaker
- 100 sample table plate:20mL dedicated beaker

For the expansion of dual systems, etc.

Titration burette
ABT-8

Stirrer
ST-8

For printing of measurement conditions and analysis results

External printer
EPS-P30

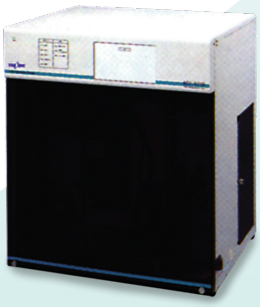
Data-management PC software

Data-gathering software
801-LOG

The titration data can be saved to a personal computer via microUSB cable or RS-232C cable.
(For OS: Windows 11/10)

Automation of measurement to titration to clean

Automatic sampling measuring equipment
AST-3210



Sample lightweight method	Three-method cock switching measuring tube system
Amount of sample	Approx. 0.2 to 20mL (loop volume (measuring tube) fixed)
Light weight repeatability	Not more than 0.5% CV (with sample volume 10mL)
Measuring tank	Material : Hard glass
	Maximum capacity : Approx. 150mL
	Minimum requirement : Approx. 100mL
	Number of Electrodes Mounted : Up to 4 bottles
	Number of titration nozzles installed : Up to 4 bottles
Alarm display	Pure water empty, waste liquid, system failure
Waste liquid/pure water porin tank	20L polyethylene tank
Power supply	AC100V 50/60Hz
Power consumption	Approx. 100VA
Dimensions･Weight	Approx. 565 (W) × 635 (H) × 480 (D) mm Approx. 45kg

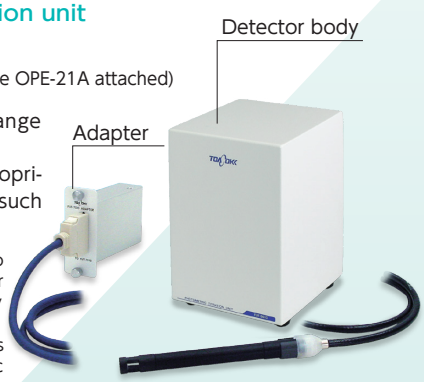
*Connection cables to the titrator main unit, electrode extension cords, etc. are required separately.

Optional Detection Unit

Photometric titration unit
FUT-8010
(photometric sensor probe OPE-21A attached)

Used to detect color change by indicator method.
It can be used for an appropriate amount of metal ions such as plating solution.

*Adapter is incorporated into the main body, and detector main body is separately placed.
*Standard photometric probes cannot be used for organic solvents. Please contact us separately if you have any inquiries.



Detector body dimensions : Approx. 102 (W) × 153 (H) × 119 (D) nm
Standard-Interference Filter : 530nm, 630nm

Potentiometric titration unit
FUT-8050
(electrodes sold separately)

Used as a potentiometric titration unit other than the potentiometric input of the standard 2ch.

*The unit is integrated into the main body.
*Separately arrange pH, ORP electrodes.

mV : 0 to ±200.0mV
Temperature : 0 to 100.0°C

Polarizable titration unit
FUT-8030
(Bi-platinum electrode HPD-303 attached)

Used for bromine value titration, diazotization titration, etc.

*The unit is integrated into the main body.

Measurement method : Constant current voltage method or constant voltage current method
Applied voltage :
0 to ±1000mV (Optional setting)
Applied current :
0 to ±99.9μA (Optional setting)

Electrical conductivity titration unit
FUT-8040
(Electric conductivity cell CT-58101B)

In addition to conductivity titration, it can also be used for conductivity measurement.

*The unit is integrated into the main body.

Measurement method : AC two-electrode method
Measuring range : 0 to 200.0S/m
(depending on the cell used)
Manual range for the titration mode
(The range is set by the main unit)
Temperature : 0 to 100.0°C

Micro titration unit

Micro titration-kit ASSY
7075600K

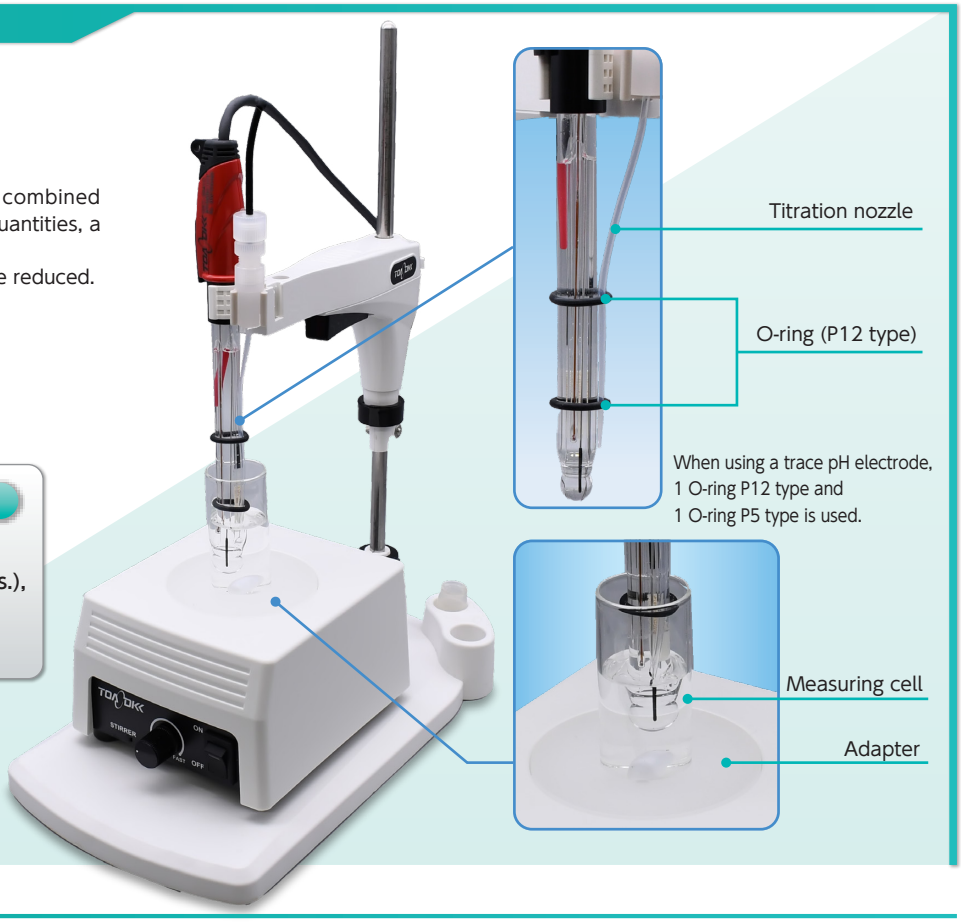
We have prepared a micro titration unit combined with a pH composite electrode for trace quantities, a silver composite electrode, etc.
The amount of titrant waste solution can be reduced.

(Some titrations may not be available.)

Min. volume : Approx. 10mL
Max. volume : Approx. 20mL

Configuration

Adapter, Stirrer (2 pcs.),
Titration nozzle measuring cell (50 pcs.),
O-ring (P5 type) (2 pcs.),
O-ring (P12 type) (2 pcs.)



Electrodes

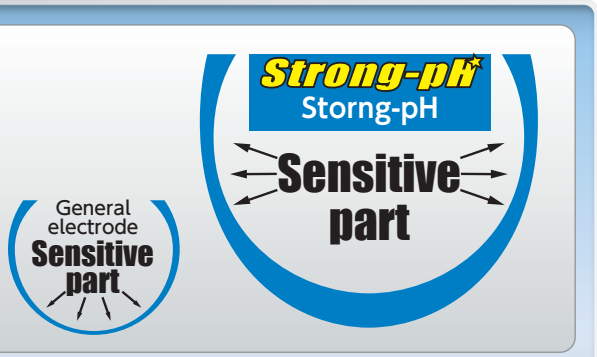
Uses (Representative titration examples)	Item name	Model/ Code No.	Note
Neutralization titration	pH composite electrode (for general use) Strong-pH	GST-5841C	AUT-801 standard-attached electrode
	pH composite electrode (for trace amount) Strong-pH	GST-5845C	
	pH composite electrode (double junction type)	ELP-062	Liquid junction replaceable Effective when a KCL solution is leakage.
Oxidation reduction titration	ORP composite electrode (for general use)	PST-5821C	
	ORP composite electrode (for general use)	PS-5011C	
	ORP composite electrode (double junction type)	ELM-016	Liquid junction replaceable Effective when a KCL solution is leakage.
Salinity titration	Silver composite electrode (double junction type)	ELX-006	Liquid junction replaceable
Nonaqueous titration	Glass electrode (for general use)	HGS-2005	Electrode adapter (0JD00001) for connecting the main unit An electrode-holder (S-HLD-S) is required separately
	Reference electrode (double junction type)	HS-305DS	
Photometric titration	Light sensor probe	OPE-21A	Probe with photometric titration unit standard
Polarization titration	Twin platinum electrodes	HPD-303	Electrode with polarization titration unit standard
Titration electrical conductivity	Conductivity cell	CT-58101B	Electrode with electrical conductivity titration unit standard

Use of pH glass electrodes that are resistant to cracking

We have used Strong & Float-pH electrodes that combine our sensor technologies. (excluding some electrodes)

Strong Strengthen the tip part (more than 10 times stronger than our specification)

Float Built-in float that can be checked for internal liquid density at a glance



Parts and standard solutions

Main unit related parts

∗Standard Accessories:Additional arrangements are required when constructing a dual system.

Item name	Model/Code No.	Note
Stirrer	ST-8	
Electrode stand ∗Standard Accessories	7702590K	With stopper support
Electrode Holder ∗Standard Accessories	7430850K	
Electrode attachment (G) ∗Standard Accessories	0IB00004	For electrodes of X series etc.
Electrode attachment (J) ∗Standard Accessories	0IB00005	For electrodes of J series etc.
Electrode attachment (N) ∗Standard Accessories	0IB00008	For nozzle, etc.
Electrode attachment (ION)	0IB00006	For single function ion electrodes
Electrode adapter	0JD00001	Single-function electrodes can be connected
Electrode holder (For R series)	0IB00001	Required when attaching 4 to 5 electrode attachments
Electrode extension cord	0GB00001	Length: 1m
Electrode extension cord	0GB00002	Length: 3m
Micro titration kit	7075600K	Configuration: Adapter, Stirrer (2 pcs.), Titration nozzle, Measuring cell (50 pcs.), O-ring (P5 type) (2 pcs.), O-ring (P12 type) (2 pcs.)
Turntable connecting cable	7703820K	For connecting TTT-510/TTT-710, Cable length: 2m
AST connecting cable	7703830K	For connecting AST-3210, Cable length: 2m
RS-232C connecting cable	0GC00002	For PC connection (PC connector standard: D-Sub9P), Cable length: 2m
USB communication cable	7473100K	For connecting a PC, Cable length: 2m
Reference electrode internal solution RE-1 100mL	143F230	Internal solution for single function electrodes (HS-305DS, etc.)
Reference electrode internal solution RE-2 100mL	143F238	Outer solution such as an electrode for salinity titration
Printer paper (5 rolls)	PAP-HCS	AUT-801 standard accessories/thermal paper for built-in printer
OA tap out WCH2436H	102DE26	If the number of outlets is insufficient, purchasing is required Cable length: 3m, 6 ports

Burette related parts

Item name	Model/Code No.	Note
Syringe unit base (for 1 to 20mL syringe)	7703030K	Standard accessories for ABT-8 Syringes, nozzles, tubes, and reagent bottles are sold separately ∗If a syringe other than "20mL brown syringe module" is used, a syringe holding ring is required separately.
Syringe unit base (for 50mL syringe)	7708720K	For ABT-8 : Syringes, nozzles, tubes, and reagent bottles are sold separately
Syringe holding ring (for 20mL brown syringe module)	76874100	
Syringe holding ring (for 1 to 20mL brown syringe)	X8774900	
Syringe holding ring (for 50mL brown syringe)	X5009600	
Cap nut (for 3-way cock)	AUT-061P	5 pieces
Cap nuts (for syringe)	AUT-062P	5 pieces
Taper piece	AUT-063P	10 pieces
Syringe unit (for 20mL brown syringe)	7702900K	Standard accessories: 20mL syringes (for modules), syringe covers (brown), syringe caps for 20mL, bag nuts, and one taper piece.

Burette related parts

Item name	Model/Code No.	Note
Syringe module unit (for 20mL)	7702910K	20mL brown syringe unit component, 20mL syringe and piston only
Syringe cover (brown)	76808800	20mL brown syringe unit component
20mL syringe cap	76274500	20mL brown syringe unit component ✻O-ring for 20mL syringes, syringe packing, bag nut, and taper piece are sold separately
O-ring for 20mL syringes	115A089	20mL brown syringe unit component
20mL syringe packing	115J074	20mL brown syringe unit component
Captive washer	77078700	1 piece For retaining pipes
50mL brown syringe	P000010	With one cap nut and one taper piece For ABT-8 use, a separate syringe-unit base (for 50mL syringe) is required
20mL brown syringe	AUT-045P	With one cap nut and one taper piece For ABT-8 use, a separate syringe-holding ring (for 1 to 20mL syringe) is required
10mL brown syringe	AUT-046P	With one cap nut and one taper piece For ABT-8 use, a separate syringe-holding ring (for 1 to 20mL syringe) is required
5mL brown syringe	AUT-047P	With one cap nut and one taper piece For ABT-8 use, a separate syringe-holding ring (for 1 to 20mL syringe) is required
1mL brown syringe	AUT-048P	With one cap nut and one taper piece For ABT-8 use, a separate syringe-holding ring (for 1 to 20mL syringe) is required
Defoaming brown nozzle (for 1 to 20mL syringe)	P000070	With cap nut
Defoaming brown nozzle (for 50mL syringe)	P000071	With cap nut
Reagent bottle (with tube joint)	7075630K	ABT-8 Standard accessories 1000mL brown semi-transparent poly bottle
Carbon dioxide absorption tube (with tube)	7075640K	ABT-8 Standard accessories
Teflon black tube (5 to 50mL syringe) 2m	AUT-022P	ABT-8 Standard accessories For 5 to 50mL syringe (ϕ2 x ϕ3)
Teflon black tube (for 1mL syringe) 2m	AUT-024P	ϕ1 x ϕ3
Hardware for syringes	AUT-066P	ABT-8 Standard accessories
Cleaning metal fitting for nozzle	AUT-067P	ABT-8 Standard accessories
Nozzle purge tube	P000108	ABT-8 Standard accessories
Adapter	70774700	Micro titration kit components
Stirrer bar	107D101	Micro titration kit components
Titration nozzle (for trace amount)	AST-P008	Micro titration kit components
H-20 (50 pcs./ box)	136C591	Micro titration kit components
O-ring (P12 type)	115A620	Micro titration kit components
O-ring (P5 type)	115A628	Micro titration kit components

Standard configuration Titrator main unit (AUT-801) + Titration burette (ABT-8)

Titrator body AUT-801

◆Specifications

Display	7inch color graphics LCD	
Display language	Japanese / English / Korean	
Display content	Titration curves, titrations, pH or mV, liquid temperature, and titration times concurrently displayed For dual-system: System A/ system B simultaneous display/switch display is enabled	
Operation key/ operation method	Flat key/function key, numeric keypad interactive method Numeric keypad toggle input supported	
Titration / measurement method	Inflection point detection titration	Stat titration
	Setpoint detection (titration unit/derivative value)	Pre-titration
		pKa determination
	Total titration (inflection point detection/set point detection)	pH/mV determination
		pH control
	Intersection detection titration	Electrical conductivity measurement
Titration stage number	Up to 5 stages (intersection detection up to 2 stages)	
Titration mode	Standard mode: 20/System User mode: 40/system Link Mode (For Sequence Titration): 20/System	
Titration control system	Single System (System A) Switching dual system (System A and System B) sets Dual-system simultaneous two-series titration/measurement enabled	
Measurement items/range	pH:pH 0.00 to pH 14.00 standard 2ch only mV:0.0 to ±2000.0mV Temperature :0.0 to 100.0℃ [When the option is connected below] Galvanostatic method: 0-2.000 μA 0-20.00 μA 0 to 200.0 μA 0 to 1000 μA (depending on the range switching) Constant current/voltage method: 0.0 to ±2000.0mV Electrical conductivity: depending on the cell used Display range 0 to 200.0μS/m (0 to 2.000μS/cm) 0 to 2.000mS/m(0 to 20.00μS/cm) 0 to 20.00mS/m(0 to 200.0μS/cm) 0 to 200.0mS/m(0 to 2.000mS/cm) 0 to 2.000S/m (0 to 20.00mS/cm) 0 to 20.00S/m (0 to 200.0mS/cm) 0 to 200.0S/m (0 to 2.000S/cm) (Manual range when performing titration mode, For electrical conductivity measurement, only auto range. During electrical conductivity measurement in the potential measurement mode, Manual range/Auto range selectable.) Transmittance (photometric titration): 0.0-100.0%	
Number of electrode inputs	Max. 4ch Potentiometric (pH/mV)2ch equipped as standard) 3ch, 4ch is added by the optional detecting unit	
Number of titration burette connections	Up to 10 units can be linked	
pH Calibration	Automatic 5-point calibration (manual calibration for optional standard solution calibration)	
pH Standard solution selection	JIS Standard Solution / US Standard Solution / Type 2 / Optional Standard Solution (Max. 5-point Calibration)	
Standard solution for pH optional	Input 2 optional standard solution table	
pH Temperature compensation range	ATC (automatic temp. compensation): 0.0 to 100.0°C MTC (manual temp. compensation): 0.0 to 100.0°C	
Temperature electrical conductivity compensation	The temperature compensation range	ATC (automatic temp. compensation): 0.0 to 100.0°C MTC (manual temp. compensation): 0.0 to 100.0°C No Temp. Compensation (ATC OFF)
	Standard temperature setting	0 to 100.0℃
	Temperature coefficient (linear)	0 to 10.0%/℃
Data memory (re-analyzeable)	Up to 600 data per series 300 × 2 = 600 data for multitasking in 2 series (dual system)	
Printer	Built-in line thermal printer	
Validation Support Functions	pH Calibration History: Up to 20 Calibration minutes Voluntary Inspection History: Up to 6 (Voluntary Inspection with Checker Input) Periodic Inspection History: Up to 10 (Periodic Inspection with Standard Reagents) Bullet Capacity Assay History: Up to 6 (The burette has information) Instrument and electrode control deadline alarm (date control) Reagent Replacement Alarm (Date Control) Syringe Replacement Alarm (Select either Date Control/Stroke Count Control) Reagent remaining amount warning (set reagent amount beforehand)	
Communication function/external control input/output	RS-232C×5ch 1.Titration burette (up to 10 units can be linked) 2.PC (D-sub) 3.Turntable (TTT-710) 4.Any one of Automatic sampling measuring device (AST-3210), Turntable(TTT-710) and electronic balance 5.External printer (for plain paper printing) (EPS-P30) 1 USB (for memory) 1 USB peripheral	
Other functions	Burette connecting function ✻Stat titration Semi-automatic mode (time-shortening titration mode) Manual end point detection Wireless communication available (optional)✻1	
Performance guaranteed temperature and humidity	5 to 35°C 20 to 85% (non-condensing)	
Power supply	AC100 to 240V 50/60Hz (dedicated AC adapter)	
Power consumption	Max. 45VA(AC100V) Max. 60VA(AC240V) (Adapter DC Out DC24V 33VA)	
Dimensions	Approx. 150(W) × 215(H) × 385(D) mm	
Weight	Approx. 3.2kg	

✻1 Connect a commercially available LAN converter to the RS-232C port for personal computer.

◆AUT-801 standard accessories

Item name	Model/Code No.
Stirrer (with one stirrer)	ST-8
Stirrer-burette connection cable	7692410K
pH electrode (Strong-pH composite electrode)✻2	GST-5841C
pH6.86 standard solution 500mL✻2	143F192
pH4.01 standard solution 500mL✻2	143F191
Internal solution for reference electrode (50 mL)	–
Electrode stand (stopper support)	7702590K
Electrode holder	7430850K
Electrode attachment (Type G)	0IB00004
Electrode attachment (Type J)	0IB00005
Electrode attachment (Type N)	0IB00008
Printer paper (5 rolls)	PAP-HCS
Power cord	118C252
AC adapter	134L070
2P-3P converter adapter	118C504
Ground wire (2m)	XL600697
Instruction manual	–

✻2 When no electrode or standard solution is specified, it is not attached.

Titration burette ABT-8

◆Specifications

Display	Syringe size indicators: LED display Error indicators: LED display
Syringe size setting	Flat key
Syringe	Syringe internal cylinder precision polished type 20mL clear glass syringe with brown syringe cover Optional syringe (brown glass syringe) 1 mL, 5 mL, 10 mL, 20 mL, 50 mL
Material of wet part	PTFE, PCTEF, hard glasses, fluorine rubber
Tube used	Tube to be used ϕ2 (inside) x ϕ3 (outside) Black teflon tube (ϕ1 (inside) x ϕ3 (outside) black teflon tube when using 1mL syringe)
Aspiration rate	Full stroke approx. 20 sec.
Discharge speed	50mL syringe: 2 to 150 mL/ min 20mL syringe: 0.6 to 60.0 mL/ min 10mL syringe: 0.3 to 30.0 mL/ min 5mL syringe: 0.2 to 15.0 mL/ min 1mL syringe: 0.03 to 3.00 mL/ min
Minimum output	50mL syringe: 0.0025 mL 20mL syringe: 0.001 mL 10mL syringe: 0.0005 mL 5mL syringe: 0.00025 mL 1mL syringe: 0.00005 mL
Bullet accuracy	In 20mL syringe Total volume error: ±0.1 % Dispensing repeatability: ± 0.01 mL
Validation Support Functions	Burette volume test history: Up to 6
Power supply output for stirrer	DC5V for dedicated stirrers
Performance guaranteed temperature and humidity	5 to 35°C 20 to 85% (non-condensing)
Power supply	AC100 to 240V 50/60Hz (dedicated AC adapter)
Power consumption	Max. 35VA(AC100V) Max. 45VA(AC240V) (Adapter DC Out DC24V 28VA)
Dimensions	Approx. 113 (W) × 396 (H) × 348 (D) mm
Weight	Approx. 5.2kg

◆ABT-8 standard accessories

Item name	Code No.
Syringe unit base (for 1 to 20mL) Including test tubes for nozzle standing	7703030K
Reagent bottle (1000mL brown semi-transparent poly bottle)	7075630K
Carbon dioxide absorption tube (with tube)	7075640K
20mL syringe unit (brown)	7702900K
Syringe bracket	AUT-066P
Defoaming nozzle (for 1 to 20mL)	P000070
Washing bracket for nozzle	AUT-067P
Tube for nozzle purging	P000108
O-ring for syringe	115A089
Teflon tube black (2m)	AUT-022P
Burette connecting cable (1.8 m)	118B129
Captive washer	77078700
Power cord ✻	118C252
AC adapter ✻	134L070
2P-3P converting adapter ✻	118C504
Ground wire (2m) ✻	XL600697
Instruction manual	–

✻No service outlets. One power source is required for each burette body.
Purchase an optional power strip (6 outlets) (Item Code: 102DE26) as needed.

Stirrer ST-8

Corresponding beaker	Up to 200mL beaker
External connection terminal	Power supply for upper stirring unit
Power supply	DC5V (dedicated cable/dedicated AC adapter AC100 to 240V 50/60Hz optional)
Power consumption	Max. 5VA(AC100V) Max. 9VA(AC240V) (Adapter DC output DC5V 5VA)
Dimensions･Weight	Approx. 110(W) x 73(H) x 135(D) and approx. 0.8kg

◆Standard accessories

Item name	Code No.
Stirring bar (Φ8×25 mm)	107D039

Note) If purchase a stirrer separately, a dedicated AC adapter (7430880K) and power cord (118C229) will be included instead of the stirrer burette connection cable.
If the dedicated AC adapter is used, there is no service outlet.

Analysis Solutions in Wide Range of Applications

Food Processing

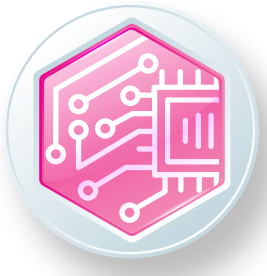
Type of titration	Used electrodes (unit)	Titration content
Neutralization titration	pH composite electrode GST-5841C	Acidity analysis in fruit beverages, yogurt, etc. by set-point titration
		Acidity and formol nitrogen continuous analysis in fruit beverages
		Lactic acid ($C_3H_6O_3$) concentration analysis in noodle processing solution
	pH composite electrode GST-5823 S	Total acidity and amino acidity analysis in sake
Oxidation-reduction titration	ORP composite electrode PST-5821C	Vitamin C concentration analysis in juices
		Peroxide value (POV) analysis in edible oils
Precipitation titration	Silver composite electrode ELX-006	Salinity analysis in seasonings (soy sauce, sauce, vinegar, etc.)
Chelatometric titration	Photometric titration unit FUT-7010 (filter 630nm)	Calcium concentration analysis in cereal
	Calcium ion-electrode CA-135B Reference electrode HS-305DS	Calcium analysis in nutritional enhancers
Nonaqueous titration	Glass electrode HGS-2005 Reference electrode HS-305DS	Acid value analysis in edible oils
		Amino acids analysis by perchloric acid titration method
Titration electrical conductivity	Conductivity titration unit FUT-8040	Sulfate ion (SO_4^{2-}) concentration analysis
Neutralization titration Precipitation titration	pH composite electrode ELP-062	Acidity and salinity continuous analysis in vinegar, mayonnaise, etc.
	Silver composite electrode ELX-006	

Chemical and Analytical

Type of titration	Used electrodes (unit)	Titration content
Neutralization titration	pH composite electrode GST-5841 C	Phosphoric acid (H_3PO_4) concentration analysis
		Phosphoric ester concentration analysis
		Barium hydroxide ($Ba(OH)_2$) and barium carbonate ($BaCO_3$) fractional determination
		Formalin (HCHO) concentration analysis by sodium sulfite method
		Hydrazine (N_2H_4) concentration analysis
Oxidation-reduction titration	ORP composite electrode PST-5821C	Iodine (I_2) concentration analysis
		Hydrogen peroxide (H_2O_2) concentration analysis
		Sodium sulfite (Na_2SO_3) concentration analysis
		Sodium disulfite ($Na_2S_2O_5$) purity analysis
		Ammonium persulfate ($(NH_4)_2S_2O_8$) purity analysis
		Potassium ferricyanide ($K_3[Fe(CN)_6]$) concentration analysis
		Sodium hydrosulfide (NaSH) analysis in hydrogen sulfide absorbing caustic soda
		Sulfur-ion (S^{2-}) concentration analysis
		Hydrazine (N_2H_4) concentration analysis
Precipitation titration	Chloride ion-electrode CL-125B Reference electrode HS-305DS	Salinity analysis in raw concrete
		Chloride ion (Cl^-) concentration analysis in portland cement (JIS R 5202)
	Silver composite electrode ELX-006	Low concentration chlorine ions (Cl^-) concentration analysis
		Sulfur ion (S^{2-}) concentration analysis
Chelatometric titration	Photometric titration unit FUT-8010 (filter 530nm)	Cobalt ion(CO) concentration analysis in cobalt chloride($CoCl_2$)
	Copper ion electrode CU-125 Reference electrode HS-305DS	Copper ion concentration analysis in basic copper base ($CuCl_2 \cdot Cu(OH)_2$)
Nonaqueous titration	Glass electrode HGS-2005 Reference electrode HS-305DS	Fluorine (HF) and nitric acid (HNO_3) fractional determination
		Epoxy equivalent analysis
		Saponification value analysis
Titration electrical conductivity	Conductivity titration unit FUT-8040	Sodium hydroxide (NaOH) and triethylamine ($(C_2H_5)_3N$) fractional determination

Plating

Type of titration	Used electrodes (unit)	Titration content
Neutralization titration	pH composite electrode GST-5841C	Borate (H_3BO_3) concentration analysis in nickel plating solution
		NaOH concentration analysis in permanganate solution
		Sodium hydroxide (NaOH) and sodium carbonate (Na_2CO_3) fractional determination in cadmium cyanide plating solution
Oxidation-reduction titration	Platinum composite electrode PST-5821C	Chromate (CrO_3) concentration analysis in plating solution
		Tin (Sn^{2+}) concentration analysis in solder plated solution
		Sodium hypophosphite (NaH_2PO_2) analysis in nickel sulfamate plating solution
		Rochelle salt ($KNaC_4H_4O_6$) concentration analysis in bronze plating solution
Precipitation titration	Silver composite electrode ELX-006	Nickel chloride ($NiCl0_2$) concentration analysis in nickel plating solution
		Sodium cyanide (NaCN) concentration analysis in bronze plating solution
Chelatometric titration	Photometric titration unit FUT-8010 (filter 530nm)	Nickel (Ni) concentration analysis in nickel plating solution
		Lead (Pb) concentration analysis in solder plating solution
		Zinc oxide (ZnO) concentration analysis in zinc plating solution
	Photometric titration unit FUT-8010 (filter 630nm)	Cadmium (Cd) concentration analysis in cadmium cyanide plating solution
	Copper ion electrode CU-125 Reference electrode HS-305DS	Copper (Cu) concentration analysis in bronze plating solution
		Nickel (Ni) concentration analysis in nickel plating solution (Back titration using copper ion electrode)
Neutralization titration Chelatometric titration Precipitation titration	Photometric titration unit FUT-8010 (filter 530nm) pH Electrode ELP-062 Silver composite electrode ELX-006	Borate (H_3BO_3), total nickel(Ni), nickel chrolide ($NiCl_2$) and nickel sulphate ($NiSO_4$) continuous analysis in nickel plating solution



Electricity, Steel and Metals

Type of titration	Used electrodes (unit)	Titration content
Neutralization titration	pH composite electrode GST-5841 C	Acid concentration analysis in etching solution
		Total acid and iron in stainless steel treatment solution fractional determination
		Sulfuric acid (H_2SO_4) and copper (Cu) concentration analysis in print board etching solution
		Free hydrochloric acid concentration analysis in mask treatment solution
		Acid and aluminium (Al) concentration analysis in chemical agent
		Ammonium fluoride (NH_4F) and hydrofluoric (HF) concentration analysis in etching solution
		Oxalic acid ($(COOH)_2$) concentration analysis in etching solution
Oxidation-reduction titration	Platinum composite electrode PST-5821C	Copper ion (Cu^{2+}) concentration analysis (JIS M 8121)
		Chromium ion (Cr^{6+}) concentration analysis
		Cobalt ion (Co^{2+}) concentration analysis
		Titanium (Ti^{3+}, Ti^{4+}) concentration analysis in etching solution
		Iron ion (Fe^{2+}) concentration analysis in pickling solution
		Sodium thiosulphate ($Na_2S_2O_3$) concentration analysis in desulfurization solution
	Platinum composite electrode ELM-016	Hydrogen peroxid (H_2O_2) concentration analysis in chemical polishing solution
		Oxalic acid ($(COOH)_2$) concentration analysis in etching solution
Precipitation titration	Silver composite electrode ELX-006	Chloride ion (Cl^-) concentration analysis in flux
		Thiourea ($(NH_2)_2CS$) concentration analysis in continuous surface treatment solution
		Thiocyanate (SCN^-) concentration analysis in desulfurization solution
		Silver ion (Ag^+) concentration analysis
Chelatometric titration	Photometric titration unit FUT-8010(filter 530nm)	Nickel(Ni) concentration analysis in etching solution
		Zinc-oxide (ZnO) purity analysis (JIS K 1410)
		Lead-ion (Pb^{2+}) concentration analysis
	Photometric titration unit FUT-8010(filter 630nm)	High purity strontium chloride ($SrCl_2$) concentration analysis
	Copper ion electrode CU-125 Reference electrode HS-305DS	Copper(Cu) concentration analysis in chemical polishing solution
Nonaqueous titration	Glass electrode HGS-2005 Reference electrode HS-305DS	Acid value analysis in flux
		Hydrochloric acid (HCl) and hydrofluoric acid (HF) fractional determination in surface treatment solution

Applications

Environment

Type of titration	Used electrodes (unit)	Titration content
Neutralization titration	pH composite electrode GST-5841C	Alkalinity analysis in water and sewage
		Acidity analysis in water and sewage
Oxidation-reduction titration	ORP composite electrode PST-5821C	Residual chlorine (Cl_2) concentration analysis in water
		Potassium permanganate ($KMnO_4$) consumption analysis
		Dissolved oxygen (DO) concentration analysis in seawater
Precipitation titration	Photometric titration unit FUT-8010 (filter 630nm)	Low concentration sulfuric acid (SO_4^{2-}) concentration analysis (JIS K 0103)
	Silver composite electrode ELX-006	Chlorine-ion (Cl^-) analysis in water
Chelatometric titration	Photometric titration unit FUT-8010 (filter 630nm)	Total hardness analysis in water
		Calcium(Ca) and magnesium(Mg) fractional determination in water

Oil

Type of titration	Used electrodes (unit)	Titration content
Neutralization titration	pH composite electrode GST-5841C	Sodium hydroxide (NaOH), amines and potassium carbonate (K_2CO_3) concentration control in desulfurized effluent
Precipitation titration	Silver composite electrode ELX-006	Hydrogen sulfide (H_2S) concentration control in desulfurized effluent
		Chlorine-ion (Cl^-) analysis in desulfurized effluent
Nonaqueous titration	Glass electrode HGS-2005 Reference electrode HS-305DS	Acid value analysis in engine oil (JIS K 2501)
		Base value analysis in engine oil (JIS K 2501)
		Acid value analysis in electric insulating oil (JIS K 2101)
		Vinyl acetate ($C_4H_6O_2$) analysis
		Carbonyl value analysis in fats and oils
	Polarizable titration unit FUT-8030	Bromine value analysis in petroleum products (JIS K 2605)

Pharmaceuticals, cosmetics, and Perfume

Type of titration	Used electrodes (unit)	Titration content
Neutralization titration	pH composite electrode GST-5841C	Sodium bicarbonate ($NaHCO_3$) concentration analysis in stomach drugs
Oxidation-reduction titration	ORP composite electrode ELM-016	Sodium sulfide (Na_2S) purity analysis
Precipitation titration	ORP composite electrode ELM-016	Benzethonium chloride ($C_{27}H_{42}ClNO_2$) analysis using sodium tetraphenylborate
Chelatometric titration	Photometric titration unit FUT-8010 (filter 530nm)	Aluminium oxide (Al_2O_3) concentration analysis in stomach drugs
	Photometric titration unit FUT-8010 (filter 630nm)	Magnesium oxide (MgO) concentration analysis in stomach drugs
		Precipitated calcium carbonate ($CaCO_3$) concentration analysis in stomach drugs
Nonaqueous titration	Glass electrode HGS-2005 Reference electrode HS-305DS	Ester value analysis in cosmetic perfumes
		Acid value analysis in cosmetic perfumes
		Cyclohexidin gluconate ($C_{22}H_{30}Cl_2N_{10}$) concentration analysis
	Polarizable titration unit FUT-8030	Ethyl aminobenzoate ($NH_2C_6H_4COOC_2H_5$) concentration analysis
Titration electrical conductivity	Conductivity titration unit FUT-8040	Sulphate (SO_4^{2-}) concentration analysis

TOA DKK

DKK-TOA CORPORATION

⚠ CAUTION Please read the operation manual carefully before using producuts.

Overseas Sales Division:
DKK-TOA Corporation
29-10, 1-Chome, Takadanobaba, Shinjuku-ku,
Tokyo 169-8648 Japan
Tel : +81-3-3202-0225 Fax : +81-3-3202-5685
E-mail : intsales@dkktoa.com

https://www.toadkk.com/english

Information and specifications are subject to change without notice.

Issued 01/2025