



Automatic Potentiometric Titrator

**AT-710 SERIES**

Multiple Sample Changer

**CHA-700**

**CHA-600**



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

# SUMMARY



Flagship model

4-channel multi connection/ High extensibility

Automatic Potentiometric Titrator

**AT-710 M**



Midrange model

Smooth operation with touch panel

Automatic Potentiometric Titrator

**AT-710 S**

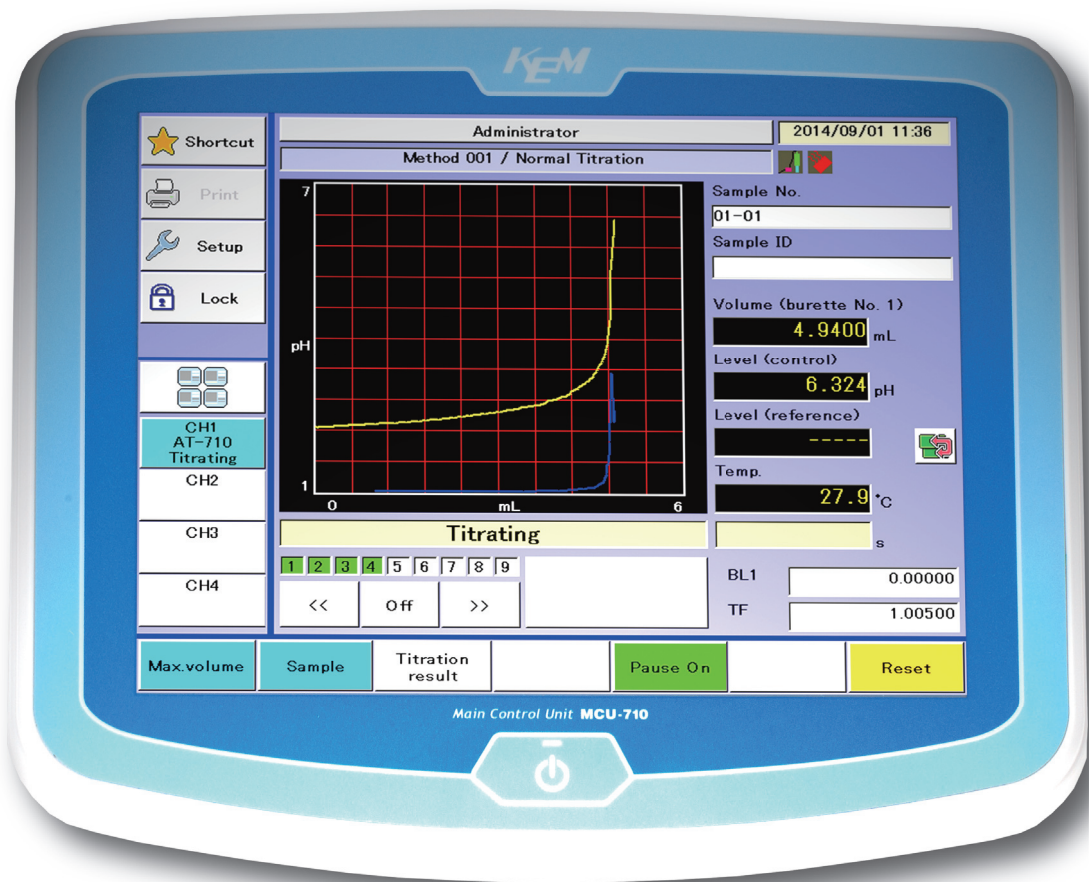


Entry model

Simplify titration

Automatic Potentiometric Titrator

**AT-710 B**



# FEATURE

Wireless connection between operation unit, touch panel, and titration unit/  
Simultaneous measurement with up to 4 titration units

AT-710M

By the use of wireless adapters (Bluetooth®, Commercialized product), the operation unit and the titration unit can be used together without being connected to each other with a cable. You can carry out titration of a sample, which emits poisonous gas, safely by keeping the titration unit inside a draft chamber while keeping the operation unit outside of it. You may place the operation unit on the opposite side of aisle or hold it with your hand by connecting a battery (Commercialized product) to it for operation. Attaching a monitor arm to the main control unit allows for flexibility of its mounting position. (The arm mount of the display is compliant with VESA standard 75mm x 75mm.)



Reagent information stored in burette unit

AT-710M

AT-710S

Information of titrant is stored in the IC chip on the burette unit. The info is firm even when the burette unit is transferred from one titration unit to another and thus there is no need to re-enter the information into the titration unit. This function prevents you from using wrong reagent.



New-type burette unit

AT-710M

AT-710S

AT-710B

The burette unit has the switching valve on top of the cylinder. The structure reduces dead space in the tube between the cylinder and the switching valve. In addition to the reduction of dead space in the cylinder, the structure reduces amount of residual titrant to ease replacement of titrant.



Option : Reagent Bottle

Electrode information stored in electrode

AT-710M

AT-710S

AT-710B

By the use of the optional smart electrode cable, electrode information is stored in the cable, not in the titration unit. Exchange and use of multiple electrodes does not require recalibration of the electrodes.



# OPTION

Multiple Sample Changer CHA-700



Main Specification

| Specification     | Contents                                                                                                                                           |                                     |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Number of samples | 6                                                                                                                                                  | 11                                  |
| Sample container  | Standard:<br>200mL disposable cup, 250mL beaker or 200mL beaker<br>Option:<br>100mL disposable cup, 50mL beaker, 100mL beaker or 100mL tall beaker | 100mL disposable cup or 50mL beaker |
| Power supply      | AC100-240V±10% 50/60Hz                                                                                                                             |                                     |
| Power consumption | Approx. 20W                                                                                                                                        |                                     |
| Dimensions        | 365 (W) x 443 (D) x 315 (H)mm                                                                                                                      |                                     |
| Weight            | Approx. 8kg                                                                                                                                        |                                     |

Multiple Sample Changer CHA-600



Main Specification

| Specification     | CHA-600-12                                                                                                                             | CHA-600-18                          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Number of samples | 12                                                                                                                                     | 18                                  |
| Sample container  | Standard:<br>200mL disposable cup, 200mL beaker or 300mL tall beaker<br>Option:<br>50mL beaker, 100mL beaker or 200mL erlenmeyer flask | 100mL disposable cup or 50mL beaker |
| Power supply      | AC100-120V/AC200-240V±10% 50/60Hz                                                                                                      |                                     |
| Power consumption | Approx. 50W                                                                                                                            |                                     |
| Dimensions        | 520 (W) x 434 (D) x 509 (H)mm                                                                                                          |                                     |
| Weight            | Approx. 18kg                                                                                                                           |                                     |

# SPECIFICATION

| Specification         | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                  |                                                                                                                                                         |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                  | Automatic Potentiometric Titrator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |                                                                                                                                                         |
| Model                 | AT-710M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | AT-710S                                                                                          | AT-710B                                                                                                                                                 |
| Product configuration | MCU-710M + AT-710 + IDP-100 + Propeller stirrer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MCU-710S + AT-710 + IDP-100 + Propeller stirrer                                                  | AT-710 + IDP-100 + Propeller stirrer                                                                                                                    |
| Detection range       | 1) Potentiometric : -2000mV to +2000mV<br>2) pH : -20.000 to 20.00pH<br>3) Temperature : 0 to 100°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                  |                                                                                                                                                         |
| Titration mode        | Auto Titration, Auto Intermit, Intermit, Stat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                  |                                                                                                                                                         |
|                       | Petroleum Titration, COD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                  |                                                                                                                                                         |
| Method                | Standard method 120, Combined method 10 (Max 5 methods can be linked)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                  | 20 (Max 2 methods can be linked)                                                                                                                        |
| Kinds of titration    | Potentiometric (acid/base, redox, precipitation), Photometric, Polarization, Conductivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                  |                                                                                                                                                         |
| Titration form        | Full titration (Auto EP detection), EP Stop, Level Stop                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                  |                                                                                                                                                         |
|                       | Intersect, EP Stop/Level Stop                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                  |                                                                                                                                                         |
| Special application   | Measurement of electrode potential (pH, potential), Acid dissociation constant (pKa)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                  |                                                                                                                                                         |
|                       | Simultaneous recording of 2-way input potential (e.g. Titer vs pH+*T, Titer vs pH+ $\mu$ S), Learn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                  |                                                                                                                                                         |
| Key operation         | Touch panel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                  | Sheet key                                                                                                                                               |
| Displays              | 1) 8.4-inch color LCD 800 × 600 dots                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                  | 1) White LED-backlit LCD                                                                                                                                |
|                       | 2) English / Japanese / Mandarin Chinese / Korean / Russian / Spanish / German / French                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                  | 2) English / Japanese / Mandarin Chinese / Korean / Russian / Spanish                                                                                   |
|                       | 3) Simultaneous 4-channel display (Can also display Karl Fischer Moisture Titrator simultaneously)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3) 1-channel display                                                                             | 3) 1-channel display                                                                                                                                    |
| Calculation           | Concentration of content, statistics data processing (mean, SD and RSD) and automatic averaging of blank and factor value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                  |                                                                                                                                                         |
| Data storage          | 500 samples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                  | 50 samples                                                                                                                                              |
| GLP conformance       | Registration of operator / User group administration<br>Titrant: Reminder of date of factor measurement / Alarm to indicate remaining reagent / Reminder of piston replacement date / Reminder of reagent replacement date / History of factor measurement<br>Check performance: Reminder of scheduled check date / Record of check results<br>Management of electrode: Reminder of calibration date / Record of calibration history / Electrode check / History of electrode check<br>Verification of burette capacity: Verification / Record of verification results<br>Management of conduction time: Display of operating time |                                                                                                  | Registration of operator / Record of check results / Record of electrode calibration / Verification of burette capacity / Management of conduction time |
| Burette size          | 20mL glass burette with brown cover (Standard)<br>Optional burette units: 10mL, 5mL, or 1mL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                  |                                                                                                                                                         |
| Burette accuracy      | 50mL burette(Auto dispenser) ± 0.5mL<br>20mL burette ± 0.02mL ; reproducibility ± 0.01mL<br>10mL burette ± 0.015mL ; reproducibility ± 0.005mL<br>5mL burette ± 0.01mL ; reproducibility ± 0.003mL<br>1mL burette ± 0.005mL ; reproducibility ± 0.001mL                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                  |                                                                                                                                                         |
| Preamplifier          | 1) STD : pH (mV) and mV, 2 inputs (Standard)<br>2) PTA : pH (mV), mV and photometric, 3 inputs<br>3) POT : pH (mV), mV and polar, 3 inputs<br>4) CMT : pH (mV), mV and conductivity, 3 inputs (factory setting required)<br>5) TET : pH (mV) 2 ways and mV, 3 inputs (factory setting required)                                                                                                                                                                                                                                                                                                                                    |                                                                                                  |                                                                                                                                                         |
| External I/O          | RS-232C port × 3<br>for Dot matrix printer, Electronic balance, Data Capture Software (SOFT-CAP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                  | RS-232C port × 2                                                                                                                                        |
|                       | SS-BUS × 1 : for Multiple sample changer, APB<br>ELE. × 1 : for Smart electrode<br>TEMP.COMP. × 1 : Input terminal for temperature sensor to correct reagent volume, sensor Pt100, temperature reading accuracy: ±0.5°C (burette 1 only)                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                  |                                                                                                                                                         |
|                       | USB × 1<br>for USB flash drive, Thermal printer, A4 printer, Keyboard, Barcode reader, Foot switch, USB HUB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | for USB flash drive, Thermal printer, A4 printer, Keyboard, Barcode reader, Foot switch, USB HUB | USB × 1<br>for USB flash drive, Thermal printer, Keyboard, Barcode reader, Foot switch, USB HUB, Android device                                         |
|                       | LAN × 1 : for Personal computer (PC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                  |                                                                                                                                                         |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                  |                                                                                                                                                         |
| Extensibility         | Measuring instrument<br>: Automatic Potentiometric Titrator (AT-710), Karl Fischer Moisture Titrator (MKV-710/MKC-710); Three of these instruments can be added.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                  |                                                                                                                                                         |
|                       | Automatic piston burette : Can control max 10 burette drives (Including two built-in burette drives)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                  |                                                                                                                                                         |
|                       | Multiple sample changer : CHA-600, CHA-700                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  | Multiple sample changer : CHA-700                                                                                                                       |
| Ambient condition     | 1) Temperature : 5 to 35°C<br>2) Humidity : 85%RH or below (no condensation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                  |                                                                                                                                                         |
| Power source          | AC100 ~ 240V ±10% 50/60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  |                                                                                                                                                         |
| Power consumption     | Main unit : Approx. 30W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                  | Main unit : Approx. 20W                                                                                                                                 |
|                       | Printer : Approx. 7W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                  | Printer : Approx. 7W                                                                                                                                    |
| Dimensions            | Touch panel controller : 225(W) × 190(D) × 42(H)mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                  |                                                                                                                                                         |
|                       | Titration unit : 141(W) × 296(D) × 367(H)mm (not incl. tubing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                  |                                                                                                                                                         |
|                       | Printer : 106(W) × 180(D) × 88(H) mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                  |                                                                                                                                                         |
| Weight                | Touch panel controller : Approx. 1.5kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                  |                                                                                                                                                         |
|                       | Titration unit : Approx. 4.0kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                  |                                                                                                                                                         |
|                       | Printer : Approx. 0.4kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                  |                                                                                                                                                         |
| Conformity standard   | CE marking EMC: EN61326-1 LVD : EN61010-1 RE Directive<br>Burette unit EBU FCC Part15 SubpartC FCC ID : 2ABSVBU01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |                                                                                                                                                         |