A&D WEIGHING

# PIPETTE MANAGEMENT SOLUTIONS


A&D Weighing

# Pipette Accuracy Testers

With a balance, software, and accessories all in one carrying case, A&D's pipette accuracy tester provides everything you need for easy verification of the accuracies of your pipettes. The slim and compact design eliminates the need for a bulky analytical balance.

AD-4212A/B-PT

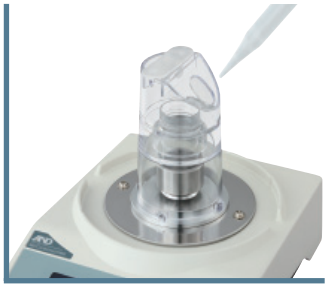
FX-300i-PT

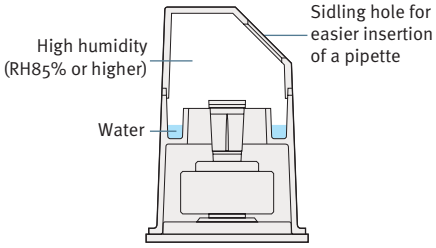
- **Allows testing in accordance with the tolerances specified in ISO 8655 or any other specifications based on the gravimetric method**

  The gravimetric method is the most common way of knowing the performance of variable-volume pipettes, in which pipette volume is determined based on the mass value of distilled water dispensed from the pipette.
- **Select from three models covering a wide volumetric range**
- **Easy test and data management with report printing using special WinCT-Pipette software**
- **Standard liquid thermometer and evaporation trap to ensure as precise measurements as possible**
- **Includes a calibration weight and tweezers for the balance**

## Evaporation Trap

One of the difficulties in weighing a small quantity of liquid (e.g. 50 µL or less) is controlling the environment to minimize errors due to loss of evaporation. The evaporation trap maintains high humidity inside and prevents evaporation of the test liquid. It is no longer necessary to set up and adjust the humidity of an entire room.






*The evaporation trap can also function as a breeze break to shield the balance from air drafts to ensure stable weighing.

## Carrying Case

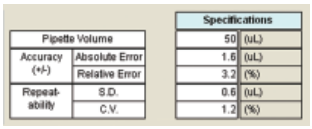
The pipette accuracy tester comes packed neatly in a portable carrying case, which allows for convenient transport to off-site locations.

AD-4212A-PT / AD-4212B-PT

FX-300i-PT

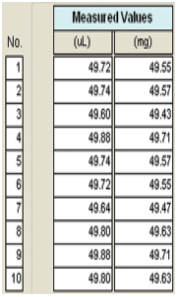
# WinCT-Pipette

### Setting Specifications
Enter the pipette volume and accuracy and repeatability specifications



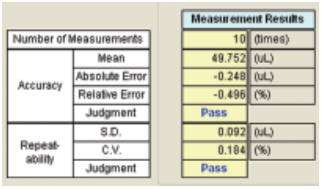
| Pipette Volume | | Specifications | |
|---|---|---|---|
| Accuracy (+/-) | Absolute Error | 50 | (uL) |
| | Relative Error | 1.6 | (uL) |
| Repeat-ability | S.D. | 3.2 | (%) |
| | C.V. | 0.6 | (uL) |
| | | 1.2 | (%) |

### Measured Values
Displays the mass values transmitted from the balance and the volumetric values obtained using the Z (conversion) factor

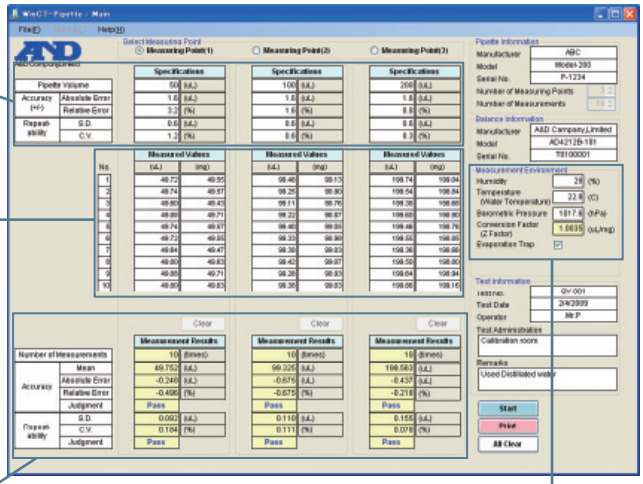


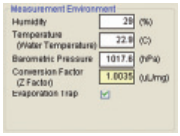
| No. | Measured Values (uL) | (mg) |
|---|---|---|
| 1 | 49.72 | 49.55 |
| 2 | 49.74 | 49.57 |
| 3 | 49.60 | 49.43 |
| 4 | 49.88 | 49.71 |
| 5 | 49.74 | 49.57 |
| 6 | 49.72 | 49.55 |
| 7 | 49.64 | 49.47 |
| 8 | 49.80 | 49.63 |
| 9 | 49.88 | 49.71 |
| 10 | 49.80 | 49.63 |

### Measurement Results
Displays the test results and pass/fail determination



| Number of Measurements | | Measurement Results | |
|---|---|---|---|
| | | 10 | (times) |
| Accuracy | Mean | 49.752 | (uL) |
| | Absolute Error | -0.248 | (uL) |
| | Relative Error | -0.496 | (%) |
| | Judgment | Pass | |
| Repeat-ability | S.D. | 0.092 | (uL) |
| | C.V. | 0.184 | (%) |
| | Judgment | Pass | |





### Testing Environment
Enter the distilled water temperature and the barometric pressure to determine the Z (conversion) factor

# Leak Tester AD-1690

Most pipette failures happen due to damaged seals, o-rings, pistons or tip-holders compromising the airtightness of the pipettes. With the AD-1690 leak tester, you can instantly determine whether a pipette needs repairing or not. The AD-1690 is designed to test for leakage in small pumps, containers, piping (capacity up to approx. 50 ml), and especially micropipettes.

### Quick Testing
Completes leak testing in less than 5 seconds.

### Leak Detection by Depressurization*
Changes pressure by evacuating air instead of injecting it, so no dust enters the measured object.

### Replaceable Air Filter
Protects the leak tester from dust when it intakes air and is easily replaced.

### RS-232C Interface
Outputs data to a PC or an A&D peripheral device such as the AD-8121B or AD-1688.

### Three Types of Attachments
Covers three different tip sizes of pipettes, with capacities ranging from 2µL to 10,000µL.


* A pressurization method is available upon request

## Specifications

| | |
|---|---|
| Despressurization value | -20 kPa ±20% (Fixed) |
| Pressure tolerance inside intrument | +0.2 kPa / 10 seconds |
| Leak test conditions | Pressure tolerance setting: +0.1~+20 kPa (Unit: 0.1 kPa)<br>Monitoring time: From 1 second (Unit: 0.5 seconds) |
| Pump operation time | Up to 6 seconds |
| Dimensions | (W) 9.1 in / 231 mm x (D) 5.0 in / 126 mm x (H) 3.1 in / 78 mm |
| Weight of the main unit | Approx. 0.25 lb / 570 g |

# Specifications

| Models | AD-4212B-PT | AD-4212A-PT | FX-300i-PT |
|---|---|---|---|
| Weighing Capacity *1 | 110 g / 31 g / 5.1 g *2 | 110 g | 320 g |
| Min. Weighing Value | 0.1 mg / 0.01 mg / 0.001 mg | 0.1 mg | 1 mg |
| Linearity | ±0.2 mg / ±0.05 mg | ±0.3 mg | ±2 mg |
| Repeatability (Standard Deviation) | 0.1 mg / 0.05 mg / 0.015 mg | 0.15 mg | 1 mg |
| Dimensions | Weighing unit : 3.1 (W) x 9.1 (D) x 7.9 (H) in /80 (W) x 230 (D) x 200 (H) mm<br>Display (with a stand) : 9.3 (W) x 5.9 (D) x 6.1 (H) in /<br>237 (W) x 150 (D) x 155 (H) mm | | 7.6 (W) x 10.3 (D) x 7.5 (H) in /<br>193 (W) x 262.5 (D) x 190 (H) mm |
| Standard Accessories *3 | • Instruction manual<br>• Balance including the weighing pan unit, breeze break, AC adaptor and AC adaptor ID label<br>• Calibration weight with a pair of tweezers<br>• Evaporation trap<br>• Sample cup with a holder (30 mL x 2 / 5 mL x 2)<br>• Liquid thermometer<br>• USB communications kit (USB converter, RS-232C cable, Instruction manual)<br>• WinCT-Pipette (CD-ROM)<br>• Carrying case with a shoulder belt and a key | | |
| AC Adaptor | Please confirm that the AC adaptor type is correct for your local voltage and power receptacle type. | | |
| Power Consumption | Approx. 11VA (supplied to the AC adaptor) | | |
| Carrying Case Dimensions | 18.5 (W) x 5.9 (D) x 14.0 (H) in / 470 (W) x 150 (D) x 355 (H) mm | | |
| Weight | Approx. 16.7 lb / 7.6 kg | Approx. 15.8 lb / 7.2 kg | Approx. 14.1 lb / 6.4 kg |

*1 When the balance weighing pan is used.

*2 The AD-4212B-PT is equipped with a smart range function. The minimum weighing value will switch to 0.1 mg automatically when the mass value exceeds 31 g but returns to 0.01 mg by pressing the RE-ZERO (tare) key.

*3 The standard accessories for the AD-4212B-PT / AD-4212A-PT / FX-300i-PT are different from those for the AD-4212B / AD-4212A / FX-300i.

## Pipette Specifications in accordance with ISO 8655

| Pipette Nominal Volume *4 | ISO8655 Requirements (Gravimetric Method) | | | | |
|---|---|---|---|---|---|
| | Maximum Permissible Error | | | | Balance Minimum Weighing Value |
| | Accuracy (Systematic Error) | | Repatability (Random Error) | | |
| (µL) | ±% | ±µ | % | µL | mg |
| 1 | 5.0 | 0.05 | 5.0 | 0.05 | 0.001 |
| 2 | 4.0 | 0.08 | 2.0 | 0.04 | |
| 5 | 2.5 | 0.125 | 1.5 | 0.075 | |
| 10 | 1.2 | 0.12 | 0.8 | 0.08 | |
| 20 | 1.0 | 0.2 | 0.5 | 0.1 | 0.01 |
| 50 | 1.0 | 0.5 | 0.4 | 0.2 | |
| 100 | 0.8 | 0.8 | 0.3 | 0.3 | |
| 200 | 0.8 | 1.6 | 0.3 | 0.6 | 0.1 |
| 500 | 0.8 | 4.0 | 0.3 | 1.5 | |
| 1000 | 0.8 | 8.0 | 0.3 | 3.0 | |
| 2000 | 0.8 | 16 | 0.3 | 6.0 | |
| 5000 | 0.8 | 40 | 0.3 | 15.0 | |
| 10,000 | 0.6 | 60 | 0.3 | 30.0 | |
| Daily inspection, simplified verification | | | | | 1 *6 |

AD-4212B-PT *5

AD-4212A-PT

FX-300i-PT

*4 The maximum volume selectable for variable volume pipettes.

*5 The AD-4212B-PT can be used for the pipette volume range from 20 µL to 10000 µL

*6 The minimum weighing value, 1mg, corresponds to approximately 1 µL. If a pipette volume is 1000 µL, a test can be performed with a resolution of 0.1%. If 200 µL, 0.5%.

Note: Make sure that the measurement environment is free from vibration, drafts and air from air conditioners.

Distributed by:

A&D Weighing
1756 Automation Parkway
San Jose, CA 95131
(800) 726-3364 or (408) 263-5333
Email: scales@andweighing.com
**www.andweighing.com**