

WEIGHING

A&D

PIPETTE MANAGEMENT SOLUTIONS



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.



AD-4212A/B-PT



FX-300i-PT

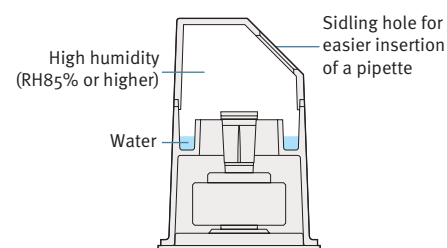
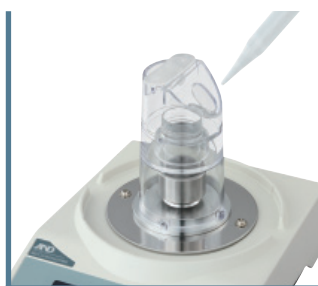
- Compliance with ISO 8655 or any other specifications based on the gravimetric method

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 μ L 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)	
Repeatability	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

Measured Values		
No.	(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	
Mean		49.752 (uL)	
Accuracy	Absolute Error	-0.248 (uL)	
	Relative Error	-0.496 (%)	
	Judgment	Pass	
Repeatability	S.D.	0.092 (uL)	
	C.V.	0.184 (%)	
	Judgment	Pass	

The screenshot shows the WinCT-Pipette software interface. It includes sections for 'Specifications' (Pipette Volume, Accuracy, Repeatability), 'Measured Values' (a table of 10 measurements), 'Measurement Results' (Mean, Accuracy, Repeatability), and 'Testing Environment' (Humidity, Temperature, Barometric Pressure, Conversion Factor, Evaporation Trap). There are also buttons for 'Start' and 'All Clear'.

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.



Specifications

Depressurization value	-20 kPa ±20% (Fixed)
Pressure tolerance inside instrument	+0.2 kPa / 10 seconds
Leak test conditions	Pressure tolerance setting: +0.1~+20 kPa (Unit: 0.1 kPa) 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

* A pressurization method is available upon request

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 Display (with a stand) : 9.3 (W) x 5.9 (D) x 6.1 (H) in / 237 (W) x 150 (D) x 155 (H) mm		7.6 (W) x 10.3 (D) x 7.5 (H) in / 193 (W) x 262.5 (D) x 190 (H) mm
Standard Accessories *3	• Instruction manual • Balance including the weighing pan unit, breeze break, AC adaptor and AC adaptor ID label • Calibration weight with a pair of tweezers • Evaporation trap • Sample cup with a holder (30 mL x 2 / 5 mL x 2) • Liquid thermometer • USB communications kit (USB converter, RS-232C cable, Instruction manual) • WinCT-Pipette (CD-ROM) • 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)		Repeatability (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	
500	0.8	4.0	0.3	1.5	0.1
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	1 *6
Daily inspection, simplified verification					

----->AD-4212B-PT *5

----->AD-4212A-PT

----->FX-300i-PT

----→ AD-4212B-PT *5

-----→ AD-4212A-PT

-----→ FX-300i-PT

Distributed by:



*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.