BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances

Features		Benefits
Perforated weighing pan with shock absorber (patent pending)		The pan features concentric slots that help mitigate the effects of convection flows, ensuring highly stable weighing. Additionally, a spring beneath the pan acts as a shock absorber, reducing the impact of sample placement and minimizing resulting weighing errors.
Breeze break	Automatic opening/closing	The side doors of the breeze break can be opened/closed using either the IR sensors on the display unit or an optional foot switch, allowing smooth, efficient access to the weighing chamber. The opening distance can be set to full, half, or a preferred position. Users can also select which door(s) to operate simply by linking door handle(s) to the sliding arm(s), which are driven by a pump and air cylinder (patent pending). A&D developed this pump technology through our experience in designing and manufacturing blood pressure monitors. It is significantly quieter and more reliable than conventional motor-driven actuators.
	Easily separable glass panes	Each glass pane of the breeze break (including the rear glass) can be easily separated for thorough cleaning/disinfection thanks to the unique clip system.
	Suspended doors (patented)	The doors suspend from the ceiling instead of resting on grooves so that contaminants do not accumulate in the grooves, and dust will not obstruct the sliding movement of the doors.
	Antistatic coating	The glass panes of the breeze break are coated with transparent evaporated metal to block outside static electricity such as charged clothing in dry winter conditions.
IR sensors		There are two IR sensors on the display unit for contactless operation of the automatic breeze break doors. The sensitivity of the IR sensors is adjustable to three levels (users may want to lower the sensitivity to reduce unwanted operation, for example). For the BH-T series, the IR sensors can also be used for the RE-ZERO or PRINT operation.
	5-inch WVGA, TFT LCD color touch screen (for the BH-T series)	The color touch screen enables intuitive operations without often having to refer to an instruction manual, while making it easy to enter numbers, change settings, etc. It employs a pressure sensor and responds to pressure, so users can operate it even if they are wearing thick gloves. Four frequently used keys, namely ON:OFF, HOME, LOG-IN and MENU are provided as physical keys to allow quick access.
	Multiple languages	For users with various backgrounds, the display can be set to English, French, German, Italian, Dutch, Spanish, Portuguese, Russian, Korean, Chinese, or Japanese. ** Certain functions are only available in English and Japanese.*
	Capacity indicator (for the BH-T series)	The capacity indicator is a bar display that shows how much the weight data is taking up of the weighing capacity of the balance. Users can also view the remaining capacity after performing tare.

BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances		
Features		**Benefits**
Display	Static warning indicator (for the BH-T series)	With this indicator the balance advises users to perform static elimination to avoid unstable weighing when the conditions are such that static electricity can be generated. (It will be displayed for approx. 30 seconds after the start of weighing if the humidity inside the balance is 45% RH or less).
	Impact shock detection (ISD)	The balance detects impact loads applied to the weight sensor and indicates the impact level in five levels from 0 to 4 (no display for Level 0). Level 3 and Level 4 are also accompanied by a beep sound. Using this as reference, users will be able to reduce impact loads in their future weighing, and thereby avoid measurement errors as well as potential damage to the weight sensor. Impact loads of Level 3 and Level 4 are saved in the Impact Shock Detection History log. When there is a problem with the balance, the log can be used to check how the balance was used.
	Reverse backlit LCD display (for the BH series)	The contrast of the black and white display provides excellent visibility even in poorly-lit areas. It prevents fatigue of users' eyes and makes long hours of work less tiresome.
Minimum weight alert* ** Available only when the unit of measure is mg.*	Minimum weight setting	Users can set the minimum weight for the balance either by direct key input or performing a repeatability test, from which the balance automatically calculates the minimum weight (by a tolerance of either 0.1% in accordance with the United States Phamacopeia (USP), Chapter 41, or 1%, depending on the laboratory requirements).
	Comparison with the minimum weight	To ensure that the measured sample amount meets the minimum weight requirement, the balance can display an alert (message for the BH-T series) until the sample amount reaches the value entered as the minimum weight. Users can also choose to set the balance to disable outputting of weighing data smaller than the minimum weight.
	Minimum weight output	The minimum weight currently registered in the balance can always be called up so that users can check/change the value or output together with date + time. When an external weight was used, the repeatability calculation data is also output.
Quick performance test (P-TEST) (for the BH-T series)		The balance allows users to quickly test its repeatability performance using either the internal weight or an external weight.
	One touch sensitivity adjustment	The balance loads and unloads the internal weight to correct inaccuracy quickly by itself with just one key press.
	Automatic self-sensitivity adjustment (AD-Just)	The balance can be set to adjust its sensitivity automatically either (1) in response to change in ambient temperature to prevent error due to sensitivity drift, (2) at a set interval time (0.5 to 24 hours), or (3) at predetermined (up to two) times of the day to ensure accuracy at all times. The balance indicates it in advance when automatic self-sensitivity adjustment is about to start.

BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances		
Features		**Benefits**
Internal weight	Calibration test	The balance can quickly perform calibration tests and check for errors (without subsequently performing sensitivity adjustment) using the internal weight* and output the result. ** It is of course possible to perform calibration tests using an external weight also.*
	Automatic internal weight value correction	In cases such as where the internal weight value varies over time, it can be corrected by performing an external sensitivity adjustment that the balance uses as a reference to correct its internal weight value automatically.
	Repeatability test	It is possible to have the balance test and calculate repeatability (standard deviation) using its internal weight, which is useful for quickly assessing the performance under a given environment. ** The internal weights are heavier than the test weights designated for the repeatability specifications, so the results should be used for reference only.*
Leveling	On-screen leveling assist (for the BH-T series)	The balance visually instructs users which leveling foot (feet) to rotate in which direction(s) depending on the position of the air bubble on the level indicator. ** This function is available as part of the daily check function.*
	Front-mounted spirit level with LED illumination	The spirit level is highly visible, making it easy to check whether the balance is level and adjust the leveling feet.
	User rights management for four user levels (for the BH-T series)	For protection from unauthorized changes to balance settings/data, users can be classified into four levels (i.e. administrator, lab manager, supervisor, and operator), and the administrator can determine the extent of rights (i.e. change to settings, date/time setting, external sensitivity adjustment, and internal sensitivity adjustment) for each level.
	Password lock (for the BH-T series)	The administrator can register users as either lab managers or supervisors with user names (max. 20 alphanumeric characters) and passwords (four alphanumeric characters). Up to 100 users can be registered, including the administrator.* (Operators do not need a password.) ** The administrator is registered by default with the password initially set to 0000, which is to be changed when the balance is used for the first time.*

BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances		
Features		**Benefits**
User access control (UAC)	Function selection switches (for the BH series)	The function selection switches help prevent unwanted/unintended changes to important settings/data by either allowing or not allowing each of the following: Change to internal settings, internal sensitivity adjustment, external sensitivity adjustment, automatic self-sensitivity adjustment, and internal weight value correction. When used in conjunction with the password lock function, these switches enable configuration of rights for each user with a password* (up to 11 users including one administrator—see below). The functions disabled for the administrator are also disabled for other users automatically. ** The function selection switches cannot be configured for users without a password, who are allowed to perform weighing operations only when the password lock function is activated.*
	Password lock (for the BH series)	It is possible for the administrator to set passwords for up to 10 additional users.* The passwords consist of four digits, which are to be created using the five keys (alphabets) on the display unit (the number of possible combinations is therefore 625). The administrator can determine the extent of rights for each of these users using the function selection swithces (see above). Other users for whom no password is given can still use the balance but for weighing operations only. ** The password for the administrator is initially set to ZZZZ (RE-ZERO key × 4).*
	Key lock	Upon receiving a command to disable its keys, the balance can only be operated by sending commands from an external device, such as a PC. This allows for the development and use of a software system that prevents data falsification, provides audit trails, enforces user authorization, and enables control of the balance to ensure compliance with standards such as 21 CFR Part 11. It is also possible to disable only specific keys, rather than all keys.
	Daily check	By this function, the balance helps users to ensure that it is always in good condition for use, taking them through several daily check items; namely, external condition check, level check, weighing pan check, and accuracy check. Users can choose to skip some of these items depending on their laboratory requirements. The results can be printed out or saved to a USB flash drive in a PDF report format for documentation and compliance.
	Smart routine check (SRC) (patented)	The balance displays the balance handling level, or how adequately it has been used, in three levels based on the number and strength of impact loads received by the weight sensor. This helps users assess and manage risk related to poor handling as well as improve their balance operating skills. The balance handling level is displayed after environmental conditions in daily check, and also included in the daily check result items. If the balance handling level is bad, users are advised to perform a periodic (performance) check.

BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances		
Features		**Benefits**
Balance check (for the BH-T series)	Periodic check	By this function, the balance helps users to implement regular inspection of its basic performance, taking them through several periodic check items; namely, external condition check, level check, weighing pan check, calibration test*, sensitivity adjustment*, pre-loading*, repeatability test, sensitivity test, and eccentricity test. Users can choose to skip some of these items depending on their laboratory requirements. The results can be printed out or saved to a USB flash drive in a PDF report format for documentation and compliance. ** Using either internal or external weight*
	Reminder/notification	Users can set the balance to remind users of daily check at the start of weighing work (i.e. when the balance is turned on). Further, they can select and enter the cycle for periodic check (1 month, 6 months, 1 year, or 2 years), according to which the balance displays notification when the next date of periodic check comes (the balance also displays last periodic check date as well as next periodic check date).
Data memory (for the BH series)		The balance stores up to 200 weighing results* + 50 sensitivity adjustment/calibration test results (all with timestamps), and 50 unit masses to be used in counting mode for cases when no external memory device such as a PC is available. The stored weighing results or sensitivity adjustment/calibration test results can be output to a printer or PC all together. ** Weighing results cannot be stored/output while the Gross/Net/Tare output function or density measurement function is in use.*
Clock & calendar		The balance has an internal clock and calendar to display* time and date, add timestamps to the output data, etc. ** Time and date can be displayed for the BH-T series only.*
Statistical calculation (SCF) (for the BH-T series)		The balance displays and outputs statistical calculation data including number of data, sum, maximum, minimum, range (maximum-minimum), mean, standard deviation, coefficient of variation and relative error in order to facilitate the analysis of measurements.
Adjustable response characteristics		Three preset combinations of weighing speed and stability (FAST, MID, and SLOW) are available for users to choose from, depending on the levels of drafts and vibrations at the location. The slower the weighing speed, the more stable the display becomes.
Multiple units of measure		It is easy to select from and switch between mg (milligram), g (gram), oz (ounce), ozt (troy ounce), ct (metric carat), mom (momme), dwt (pennyweight), gr (grain), pcs (counting mode), and % (percent mode). Either tael (Singapore/HK jewelry/Taiwan) or tola can be added upon request.

BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances	
Features	**Benefits**
Formulation mode (for the BH-T series)	This mode enables quick, accurate weighing of multiple samples to mix according to a set recipe, allowing for setting the target value (g) and tolerance (%) for each sample. Up to 150 samples and 300 recipes can be registered in the balance.
HPLC mode (for the BH-T series)	This mode is dedicated to preparing buffer solutions for high-performance liquid chromatography (HPLC). Unlike normal formulation mode, the target value for each sample to be weighed can also be set in terms of molar concentration, which is automatically converted to weight based on the molecular weight of the sample and the volume of the buffer solution to be made. Errors that can occur when such calculations are made by users themselves can therefore be avoided. Up to 30 samples* and 300 recipes can be registered in the balance. ** Apart from those, samples that are typically used to make buffer solutions are already registered by A&D by default.*
Counting mode with ACAI	This mode lets users count a number of small pieces of the same mass value quickly, effortlessly and precisely. The Automatic Counting Accuracy Improvement (ACAI) function recalculates the average piece weight as pieces are added for counting to increase the sample size and reduce the effect of possible variations in individual piece weights.
Percent mode	The weight value can be displayed as a percentage of a reference mass, which is useful for target weighing or checking the sample variation.
Density measurement	To obtain the density of a sample, users simply need to input the water temperature (or the density of the liquid if using a liquid other than water), and weigh the sample in air and in water using either the AD-1653 density determination kit (sold separately) or the underhook. The balance will then automatically calculate the density. It is also possible to measure the density of a liquid using a sinker*. ** Included as standard with the AD-1653.*
Underhook	Can be used for hanging and weighing magnetic materials that can't be brought close to the weight sensor for correct measurement, as well as for density measurements.
Auto power ON	The weighing mode display is automatically activated when AC power is supplied, so there is no need to press the ON/OFF key, which is useful when power is accidentally interrupted.
Auto power OFF	The balance can be set so that the display switches off automatically after a period* of inactivity to save power. ** Between 0 and 255 minutes for the BH-T series, and 10 minutes for the BH series.*

BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances		
Features		**Benefits**
History (for the BH-T series)		The balance can display/save to a USB flash drive* log-in/log-out history, operation (changes to settings) history, sensitivity adjustment history, and impact shock detection (ISD) history with date, time, user name and other necessary information for later reference. ** The balance stores up to 1,000 data (which is then overwritten in order from the oldest data) for each history. It can only display the latest 100 data but save all data to a USB flash drive in CSV format.*
Print/output data	GLP/GMP/GCP/ISO compliance	For documentation required by GLP/GMP/GCP/ISO, the balance can output its manufacturer, model, serial number, ID number, date + time*, space for signature for sensitivity adjustment report, calibration test report, and title & end blocks for a series of weighing results. ** It is possible to use the clock & calendar of an external device such as the AD-8129TH compact printer instead of the balance's, which provides users with the option of preventing falsification of the timestamp using the password lock function of that external device.*
	GLP custom output mode (for the BH-T series) ** Cannot be used when the application is in Formulation, HPLC, or Density measurement mode.*	This mode offers a high degree of flexibility in customizing GxP-compliant data output. Users can create and edit templates for headers, bodies, and footers—up to 50 of each—with template names of up to 30 characters. Body templates can include up to 30 lines, while headers and footers can each have up to 20 lines, with customizable content on each line. This makes it easy to tailor the output content and sequence to specific needs. Once configured, these templates can be saved and reused, greatly enhancing efficiency and convenience in routine workflows.
	Label output mode (for the BH-T series) ** Cannot be used when the application is in Formulation, HPLC, or Density measurement mode.*	This mode allows users to connect the balance to a label printer that supports ZPL® or ZPL II®, enabling data output as barcodes (CODE128). Similar to the GLP custom output mode, it supports the creation and editing of up to 50 output templates (body sections only), each with a name of up to 30 characters. Templates can include up to 30 lines, with customizable content on each line, and users can choose whether to print each item as text or barcode. The size of printed elements can be adjusted in four levels to match the label paper size, ensuring optimal readability and layout.
	Universal Flexi Coms (UFC)	This function enables users to customize printout content and layout by editing and sending commands (UFC setting commands) to the balance.* Following the commands, the balance creates data to be output to either a printer capable of dump printing, such as the AD-8129TH compact printer, or a commercially-available label printer** for barcode printing. ** To do this easily with a PC, the WinCT-UFC software is available as a free download (cf. benefits of WinCT-UFC).* *** A label printer that supports ZPL/ZPL II.*

BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances		
Features		**Benefits**
	Gross/Net/Tare	The balance can be set to output the gross and/or tare weight values together with the net weight value to an external device such as a printer, PC or PLC. For the BH-T series, the gross and/or tare weight values can also be constantly displayed on the screen along with the net weight value.
	Internal setting information output (for the BH series)	The parameters of internal settings currently stored in the balance can be output to a printer/PC all at once for confirmation and management.
Standard interfaces	RS-232C (D-Sub 9P)	Bi-directional serial communication (i.e. sending data and receiving commands) with an external device, such as a printer or PLC, can be made via this interface.
	USB Type-C	Users can toggle between Quick USB and bi-directional communication (Virtual COM) using internal settings. Quick USB enables connection of the balance to a PC without requiring driver installation, allowing users to send data to applications such as Microsoft Excel, Word, or Notepad as if using keyboard input (communication is one-way, from the balance to the PC only). For bi-directional communication, application software for communication is required on the PC, but is available as a free download from A&D's website. A USB cable (2 m) is provided as standard.
	External key input (jack socket)	A separately-sold foot switch can be connected for operation of RE-ZERO, PRINT or the automatic breeze break doors.
	USB Type-A (for the BH-T series)	This interface allows connection of a USB flash drive for saving weighing data (in CSV format), daily/periodic check results (in PDF), etc.
	Ethernet (TCP/IC) (for the BH-T series)	With this interface, the balance can be added to a local area network. It is useful when users want the PC to communicate with multiple balances.
	Bluetooth® (for the BH-T series)* ** This function is currently enabled for the US, Canada and Japan only.*	Using Bluetooth Low Energy (BLE), this interface realizes wireless communication between the balance and a BLE-equipped device, such as PC, smartphone, or tablet computer. Users can choose either the keyboard mode or serial mode. The former requires no application software for communication on the part of the BLE-equipped device but for sending data from the balance to the device only. The latter realizes bi-directional communication, which enables sending of commands to the balance, but needs application software for communication as well as the AD-8541-PC (for converting Bluetooth to USB Virtual COM).
	Breeze break rings (high-profile and low-profile) ** 0.1 mg models come with the low-profile breeze break ring only.*	The high-profile breeze break ring provides greater protection against drafts and convection flows. On the other hand, the low-profile breeze break ring is suitable when using items such as weighing paper or filters that may come into contact with the high-profile ring.

BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances		
Features		**Benefits**
Standard accessories	Tweezers for calibration weight (for 0.01 mg models) (AD-1689)	The 210 mm tweezers allow weight placement without reaching into the chamber, minimizing heat-induced airflow. Made of SUS304 with resin-coated tips and grip, they reduce heat transfer and ensure secure handling.
	Micro spatula (for 0.01 mg models)	Useful for handling and weighing minute amounts of powder samples. ** Also available as a separately-sold accessory, AX-SPATULA (5 pcs)*
	Cleaning brushes (large and small)	Highly convenient for daily cleaning and prolonged maintenance of the balance. The bristles are made of animal fiber, which has excellent antistatic performance to prevent particle attraction or scattering.
	Weigh boats (10 pcs)	Handy 10 mL antistatic receptacles ideal for weighing small sample amounts. ** Also available as a separately-sold accessory, AX-TRAY-10ML (250 pcs).*
	External ionizer (optional for the BH series) (AD-1683A)	Weighing becomes unstable when the sample (and/or container) is statically charged, and the ionizer removes such static electricity in an instant. Adopting the DC method, it uses no fan to deliver ions and thus causes no breeze (except for minimal ionic wind), which allows neutralizing even extremely fine powders without disturbance. The ionizer is equipped with an IR sensor, so it can be installed next to the balance and activated for a set duration using the IR sensor right before placing the sample inside the breeze break. ** Unlike the BA-T/BA series, power is not supplied from the balance (a separate AC adapter for the ionizer is provided as standard).*
Freeware	WinCT	Windows Communication Tools (WinCT) is a convenient software utility that receives data in text file format from a balance, plots graphs, and can export data directly to other applications (e.g. Microsoft Excel) on a PC. It can also be used to send control commands to the balance.
	WinCT-Plus	This software is the version of WinCT for LAN connection and sends commands to control and acquire data from multiple balances.
	WinCT-UFC	With this software, users can easily edit UFC setting commands on a PC and send them to a balance/scale with the UFC function such as the BH series. All that is required is to select data (e.g. weighing result, date, time, ID number, etc.), enter text and adjust the layout while checking the preview screen, which the software automatically converts to UFC setting commands. For label printing, users can choose one of three kinds of barcodes; namely, QR code, Data Matrix code and Code 39.

BH-T/BH Series of Premium-Level Semi-Micro/Analytical Balances		
Features		**Benefits**
Options	External ionizer (standard for the BH-T series) (AD-1683A)	Same as above
	Density determination kit (AD-1653)	Using this kit, it becomes quicker, easier and more precise to weigh the sample in air and in water, which is necessary to calculate the density of that sample. The kit includes a beaker, thermometer (to measure the water temperature), and sinker (to measure the density of a liquid).
	External IR switch (AX-IR-SWITCH)	This switch can be added to the ionizer if users prefer not to put a hand or sample close to the IR sensor of the ionizer to activate it.
	Foot switch for PRINT (with connector) (AX-SW137-PRINT)	These foot switches enable use of the PRINT or RE-ZERO command by depressing them, and are useful when, for example, both hands are full, or the balance is used in a confined space such as a glove box. The foot switches can also be used for opening/closing the breeze break doors.
	Foor switch for RE-ZERO (with connector) (AX-SW137-REZERO)	