Weighing Environment Analyzer

AD-1691

BM-20 (sold separately)

- ☑ *Daily and periodic checks of balances*
- ☑ *Uncertainty calculation for balance calibration*
- ☑ *Minimum weight calculation*
- ☑ *Assessment of measurement environment*
- ☑ *Remote balance display and control*

ISO 9000 CERTIFIED

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A&D Company, Limited

http://www.aandd.jp

Do You Know What It Takes to Properly Manage Balance Quality and Performance?

How would you like to have someone from A&D – an expert on balances – sit by your side, advise you what to carry out and how, and even create reports for you to meet documentation requirements, whenever and as often as necessary? For A&D's balances[i], you can essentially make all this happen with just one device: the AD-1691 Weighing Environment Analyzer!

* i Please inquire regarding connectivity with other manufacturers' balances

Operation with 7-inch color touch-panel LCD

The AD-1691 makes various tasks related to balance management quick and easy for every user. All you have to do is follow the displayed, step-by-step guidance and touch the screen to enter prompted information, commands, selections, etc.

Comes with a dedicated touch pen and holder ▶

1. Daily and periodic checks of balances

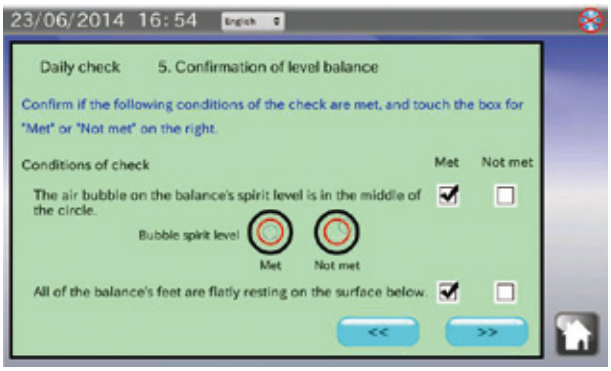
If you need to implement standard operating procedures (SOP) for quality and performance verifications but aren't sure where to look, these functions can assist you.

Daily balance check

- Confirmation of external appearance
- ▼
- Confirmation of measurement environment
- ▼
- Confirmation of power supply
- ▼
- Confirmation of level balance
- ▼
- Measurement confirmation

For daily checks, you are simply asked to determine whether the condition is "met" or "not met" for each check item[ii]. The check items include those which A&D recommends as the most basic ones to confirm that the balance meets proper conditions for use.

Whether to check all or only some of these items will be up to you, depending on your workplace policies and requirements.

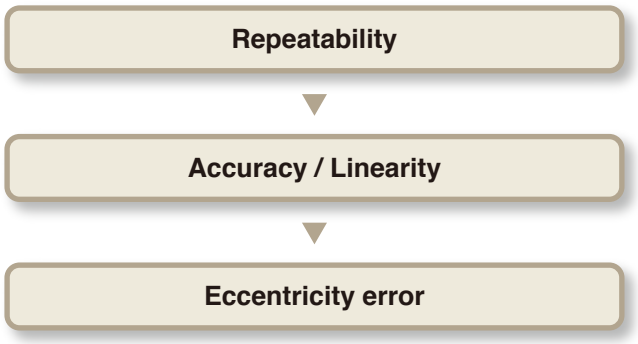


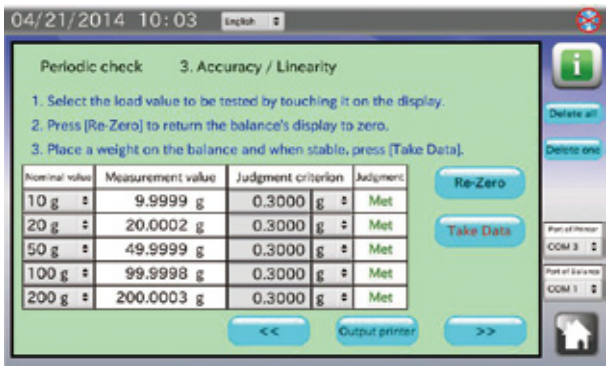
Confirmation of level balance

* ii The AD-1691 need not be connected to the balance to perform a daily check.

Periodic balance check

Three kinds of tests are prepared for the periodic check; namely, those for repeatability, accuracy / linearity, and eccentricity error. You can easily perform one, two, or all of them in accordance with your set specifications.

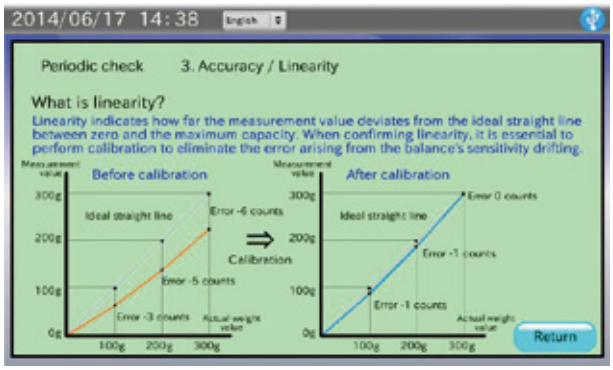




Test for linearity

▶ ***Quick glossary***

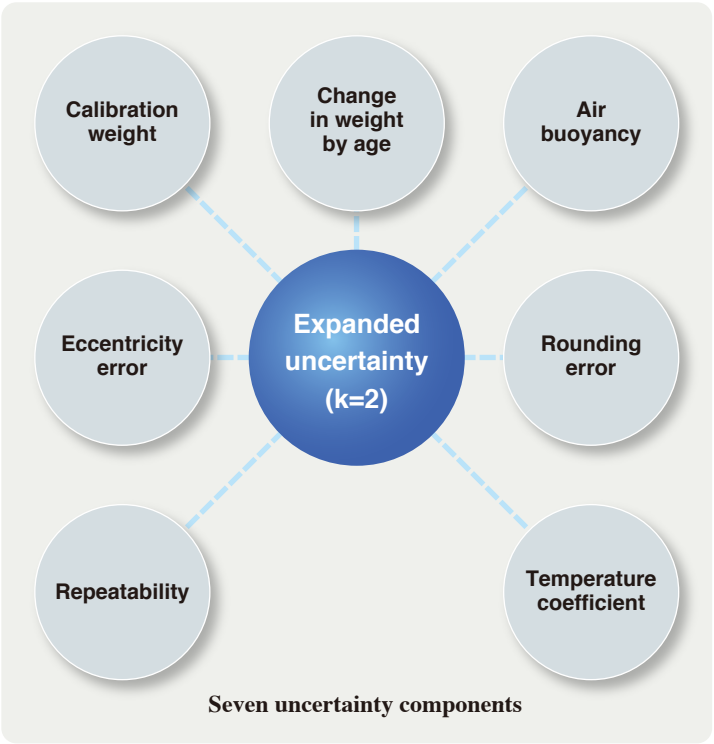
Explanation of each periodic check item can be accessed by touching the i button in the upper-right corner of the screen.



Explanation of linearity

2. Uncertainty calculation for balance calibration

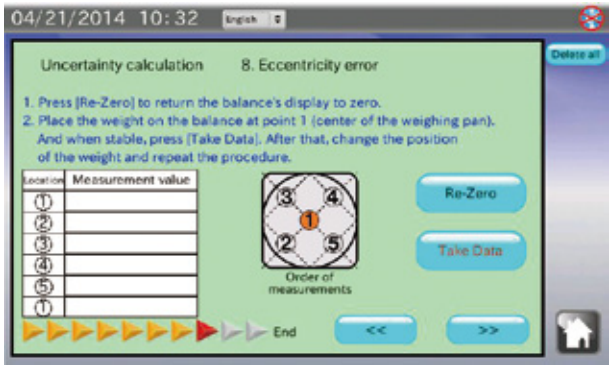
Regular calibration of balances is essential to ensure the reliability of your measurement data. The AD-1691 lets you warrant accuracy even when a third-party calibration service cannot be used frequently.



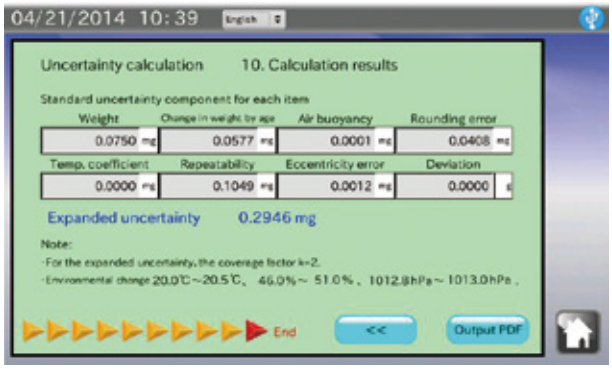
Seven uncertainty components

In a precise sense, a calibration report is only complete when the uncertainty of the measured value is provided. However, its estimation normally involves highly complex mathematics, not to mention knowing what uncertainty components exist.

With the AD-1691, the whole thing becomes very simple. Just enter information and perform tests as per on-screen instructions, and the AD-1691 will calculate the expanded uncertainty (coverage factor k=2) of your balance calibration right on the spot, based on seven uncertainty components.



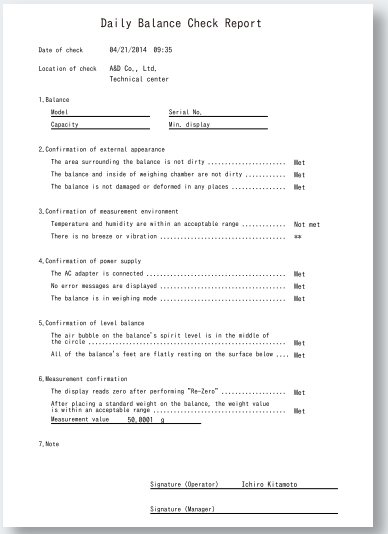
Eccentricity error test



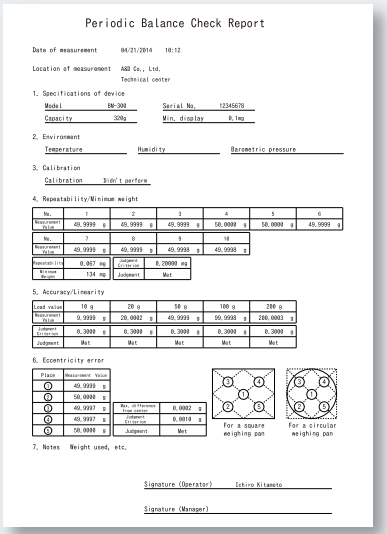
Uncertainty calculation results

Reporting results

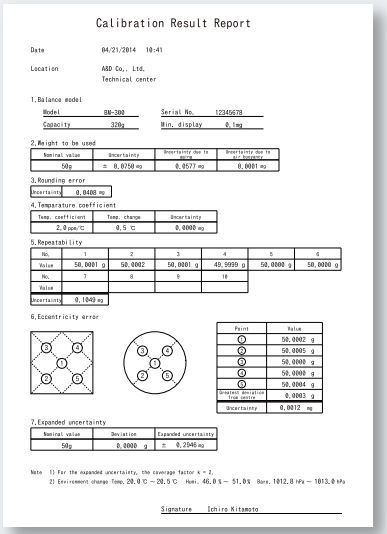
For documentation required by ISO, GLP, GMP, etc., daily/periodic check or calibration (uncertainty calculation) results can be saved to a USB flash drive in PDF report formats. Daily/periodic check results can also be outputted to a printer.



Daily check report (PDF)



Periodic check report (PDF)



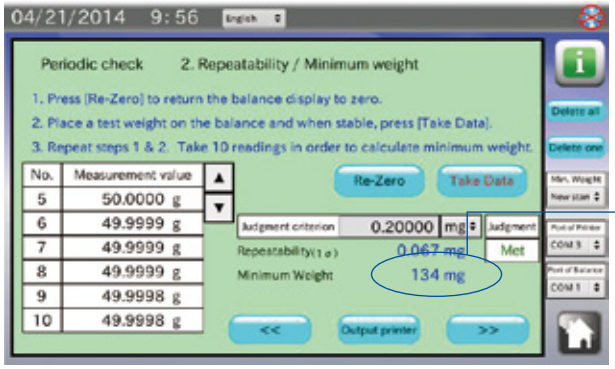
Calibration report (PDF)

3. Minimum weight calculation

To know the minimum weight, you'll have to send for the balance manufacturer or a third-party specialist and ask them to work it out, right? – Wrong!

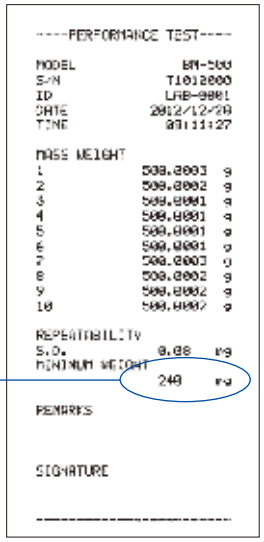
When performing a repeatability test for a periodic check, the AD-1691 also automatically calculates the minimum weight as defined by the United States Pharmacopeia (USP) [iii].

* iii Supports the newly-revised standard (effective since December 2013)



Repeatability test for a periodic check

Minimum weight



Repeatability test report

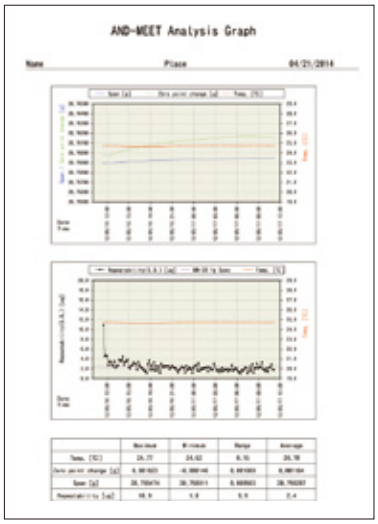
4. Assessment of measurement environment

Crack the mystery of invisible environmental culprits that destabilize your measurements. This is where the product name "Weighing Environment Analyzer" comes from.

Analytical balances, microbalances among others, are highly susceptible to external disturbances like temperature changes, vibrations, drafts, etc. These disturbances are typically imperceptible to humans, leaving many users clueless about the lack of precision in their balances.

To solve this problem, A&D invented the "A&D Measurement Environment Evaluation Tool", or AND-MEET, which helps deduce what factors in the set-up environment are affecting the stability of measurements. Once those factors are identified, it becomes possible to devise corrective measures to elicit better performance from the balance (and thereby **improve the minimum weight** as well).

Taking data from the BM-20 microbalance



AND-MEET report (PDF)

AND-MEET was originally available for use only by qualified specialists at A&D. The AD-1691 now allows you to conduct assessments yourself with it when using A&D's BM series of micro analytical balances.

5. Remote balance display and control

What happens to the AD-1691 while none of the above-mentioned tasks are being carried out? Just laid aside? – Check this feature that will actually make the AD-1691 both handy and important at all hours.

The AD-1691 can be used as a separate touch-panel display for an A&D balance (with an RS-232C interface).

Use of this function is especially recommended for the BM-20/22 microbalances, as the slightest tilting or tremor caused by direct key operation could compromise their accuracy and precision (the ION key is available to control their built-in static eliminator).

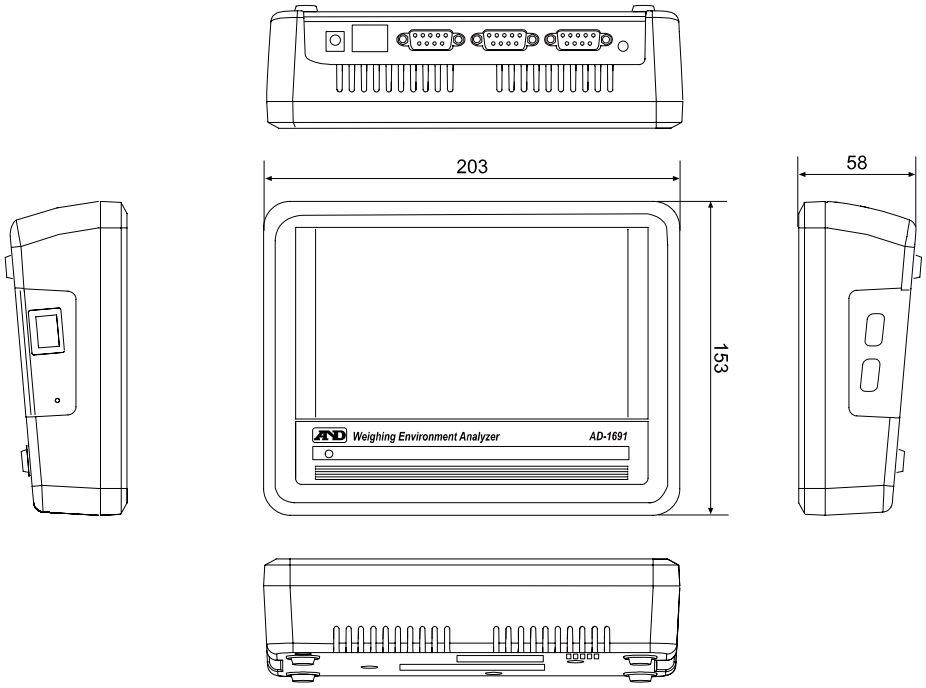
Console screen

Specifications

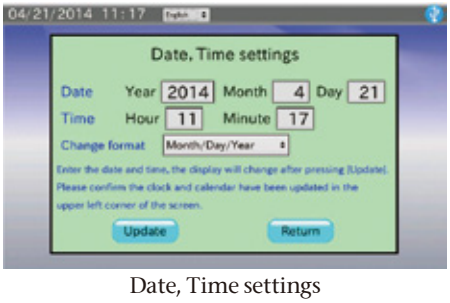
Display	TFT color LCD with backlight (7 inches, 800 × 480 dots)
LCD backlight brightness	Adjustable to 10 levels[iv]
Data transmission	RS-232C × 3, USB (1.1) × 2[v]
Operating environment	5 to 40°C (41 to 104°F), 85% RH or less (no condensation)
Power supply	AC adapter
Power consumption	Approx. 30 VA
External dimensions	203 (W) × 153 (D) × 58 (H) mm, excluding protrusions
Net weight	Approx. 1.0 kg
Standard accessories	Instruction manual, Touch pen with holder, AC adapter, three balance connection cables (D-Sub 9-9, D-Sub 9-25, D-Sub 9-DIN 7), Stand attachment

*iv Set to the maximum brightness by default
*v For inserting USB flash drives (the two slots cannot be used at the same time)

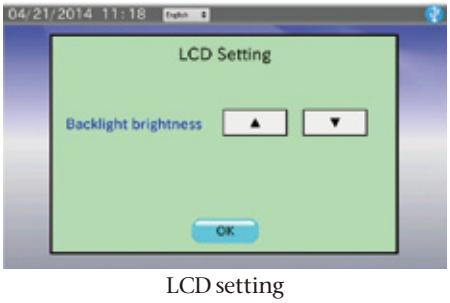
Dimensions



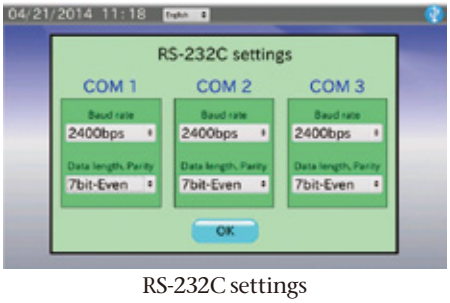
▶Device setting screens



Date, Time settings



LCD setting



RS-232C settings

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