For weighing during voyage, accurately

Motion Compensated Shipboard Electronic Balance System

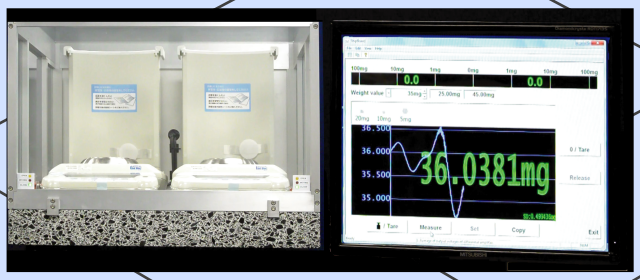
# Shipboard Electronic Balance Pirka


The Shipboard Electronic Balance System “Pirka” is a system that can weigh samples with an accuracy of milligrams or micrograms by using two electronic balances for a correction of swaying at the location like shipboard.

## Main usage of Pirka

- ◇ Weighing of samples on swaying location, such as a research ship at sea.
- ◇ This system has three versions, weighing about g, mg and μg scale.
- ◇ Weighing of powder samples by using a tare function.

## Overview of Pirka




Pirka（the gram model）

Micro Pirka（the microgram model）

## Mechanism of Pirka

- ◇ One of the two electromagnetic force equilibrium equation balances is used for reference balance and another one is used for weighing balance.
- ◇ The weight value of a sample is calculated by fitting output value to the calibration curve, which is made in advance by using the reference weights on the weighing balance.
- ◇ The weight value is determined by setup of the convergence condition because balance output value varies at swayed location.

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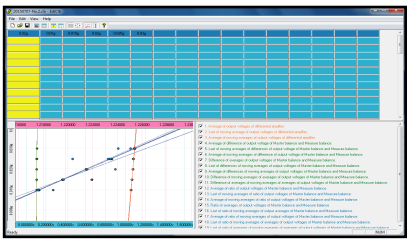
# Main features of Pirka

## Calibration software (EdtClb)

This software creates a calibration curve and outputs file.
The calibration curve is calculated from output voltage difference between the reference balance and the weighing balance, and used for the swaying correction.
The range of the calibration curve and the reference weighing-point can be set arbitrary.
The creation process of the calibration curve can be checked with the calibration result graph on the screen in real time.



## Weighing software (ShipBoard)

This software output weight value which is calculated by fitting output voltage difference between the reference balance and the weighing balance to the calibration curve file.
The output status of the weighing data can be displayed on the measuring screen in real time.
The methods for weighing calculation or determining condition for weight value can be selected.
Useful features are equipped such as tare function, printing of the weight value or drag-and-drop to other general purpose applications.


## ◇ Output data

Calibration software (EdtClb) : Calibration file (*.clb)
Weighing software (ShipBoard) : Weighing history and the results [text data] (*.log)
Weighing results [binary data] (*.cal)
Digital raw data (*.raw)
(It can be verified by post-processing software)

## ◇ Specifications

| | Pirka | Milli Pirka | Micro Pirka |
|---|---|---|---|
| | | | |
| Maximum weight | 200 g | 40 g | 2 g |
| Minimum display | 0.1 mg | 0.1 μg | 0.1 μg |
| Reproducibility | 10 mg | 1 mg | 10 μg |
| Repeatability | 10 mg | 1 mg | 10 μg |
| Minimum weight | 10 mg | 1 mg | 10 μg |
| Size of the dish | φ80 mm | φ80 mm | φ16 mm |
| Stabilization time | 30 sec ～ (Depend on the situation of swaying) | | |
| Operating temperature range | 5～40 ℃ | | |
| Supported OS | Microsoft Windows 7 SP1 / Windows 10 | | |

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