

Micro Balance C-33

Single Pan, Economical Micro Balance

At the heart of every Thermo Scientific Micro Balance C33 (formerly sold under the ORION brand) is a symmetrical, lightweight alloy beam, coupled to a rugged platinum taut-band suspension. This allows for a unique combination of stability, sensitivity and durability.

Thermo
SCIENTIFIC

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Main Features:

- Convenient micro-weighing up to 250 mg tare range
- Portable - no balance table required
- System can take physical shocks
- No need for temperature-controlled environment

Typical application fields:

- Pharmaceutical
- Biotechnology
- Chemical Industry
- Semiconductor



Single Pan, Economical Micro Balance

The Thermo Scientific Micro Balance C-33 enables microweighing at a very affordable price. The Thermo Scientific Micro Balance C-33 has only one hang-down position and there is no counter-weight pan. With a tare range of up to 250 mg, the Micro Balance C-33 can handle almost any container, making it more convenient to weigh.

The Micro Balance C-33 is ideal for weighing biological material, filters, standards for serial dilutions, and precious chemicals, all of which usually require a micro balance. The Micro Balance C-33 is extremely stable and can be used on a normal lab bench and does not require a temperature-controlled environment.

Micro Balance C-35 & C-34

Dynamic Weighing

At the heart of every Thermo Scientific Micro Balance C-35 & C-34 (formerly sold under the ORION brand) is a symmetrical, lightweight alloy beam, coupled to a rugged platinum taut-band suspension. This allows for unique combination of stability, sensitivity and durability.

Typical application fields:

- Pharmaceutical
- Biotechnology
- Chemical Industry
- Semiconductor



Main Features:

- Large weighing chamber for samples up to 60 mm in diameter
- Stable readings in seconds
- CERTI-CAL system for weighings
- System can withstand physical shocks
- Portable - no balance table required
- No need for temperature-controlled environment



Wide dynamic weighing range

Thermo Scientific Micro Balance C-34 & C-35 micro and ultra micro balances fit any of your weighing needs. These balances offer a wide dynamic weighing range virtually eliminating the need for tare weights. The ultra Micro Balance C-35 can weigh a 250 mg sample to 1 µg or a 25 mg sample to 0.1 µg.

Thermo Scientific Micro Balance C-34 and C-35 have a large, universal access weighing chamber, dual pans, and many other features in an easy-to-use package. Thermo Scientific balances use the CERTI-CAL™ system for weighing standards and RS232 communication.

Micro Balance C-33 Specifications

Specification	C-33	Benefit
Capacity	250 mg	Weigh a variety of samples
Weigh Range (1 µg precision)	200 mg	Quick weighing over the entire range
Readability	1.0 µg	High sensitivity
Reproducibility	1.0 µg	Great precision, economical
Linearity	1.0 µg	Readings you can trust
Tare Range	250 mg	Can handle almost any container
Response Time	10 sec	Quick and stable reading
Output	RS232	Bi-directional RS232
Pan Size	Up to 60 mm	Large sample sizes
Housing Size (cm)	41.5 x 23 x 27.5	Fits easily on any benchtop
Net Weight	8 kg	Light weight and portable
Power	100 to 240 VAC	

Micro Balance C-34, C-35 Specifications

Specification	C-34	C-35	Benefit
Capacity	3.5 g	3.5 g	Weigh a variety of samples
Weigh Range (0.1 µg precision)	-	25 mg	
Weigh Range (1 µg precision)	250 mg	250 mg	Quick weighing over the entire range
Weigh Range (10 µg precision)	1250 mg	1250 mg	
Readability	1.0/10.0 µg	0.1/1.0 /10.0 µg	High sensitivity
Reproducibility	1.0 µg	0.1 µg	Great precision
Linearity	1.0 µg	0.1 µg	Readings you can trust
Tare Range	1250 mg/3.5 g	1250 mg/3.5 g	Can handle almost any container
Response Time	10 sec	10 sec	Quick and stable reading
Output	RS232	RS232	Bi-directional RS232
Pan Size	Up to 60 mm	Up to 60 mm	Large sample sizes
Housing Size (cm)	24.5 x 30 x 19	24.5 x 30 x 19	Small foot print
Weighing Unit (cm)	13 x 30 x 21	13 x 30 x 21	
Net Weight	10 kg	10 kg	
Power	100 to 240 VAC	100 to 240 VAC	
Seperate Weighing Chamber	Yes	Yes	

Ordering Information

Thermo Scientific Micro Balance C-33, C-34, C-35 Ordering information

Cat No.	Description of Balance and Accessories
770-0030	Micro Balance C-33 Version II, 250mg capacity, single weighing range. Power Selection for 100, 120, 220, 240v, 50/60 Hz
770-0010	Micro Balance C-34, 3.5g capacity, 2 weight ranges. Power Selection for 100, 120, 220, 240v, 50/60 Hz
770-0020	Ultra-micro Balance C-35, 3.5g capacity, 3 weighing ranges. Power Selection for 100, 120, 220, 240v, 50/60 Hz
770-0180	Ionizing unit, eliminates static charge on balance surfaces and samples, 12 months of useful life.
770-0040	Accessory pack for use with C-34 & C-35. Contains micro-spatula, 19mm open & 22mm platform stirrups, (100) 12mm AL pans, (20)25 mm AL pans, non-magnetic forceps, and 200mg class 1.1 calibration weight.
770-0120	Anti-static solution, 6 oz. bottle, eliminates static charge on balance surfaces
770-0170	Forceps, non-magnetic SS, for handling class 1.1 weight and filter samples
770-0190	Spatula, vibrating
770-0140	Interface cable, RS232, null modem for micro Balance C-33, 34, 35
770-0090	Weight, 100mg, flat, class 1.1
770-0110	Weight, 200mg, flat, class 1.1
770-0100	Weight, 1g, flat, class 1
770-0080	Tare set, 1-500mg includes: (1) 1mg, (2) 2mg, (1) 5mg, (1)10mg, (2)20mg, (1)50mg, (1)100mg, (2) 200mg, (2)500mg, tare weights.
770-0060	Pan, AL, 12mm, each-17mg, 20/pk
770-0050	Pan, AL, 12mm, each-17mg, 100/pk
770-0070	Pan, AL, 25mm, each-35mg, 20/pk
770-0150	Weighing cup, teflon - 51mg, 15 x 11mm
770-0160	Weighing cup, teflon, 1.8ml - 60mg, 48/pk
770-0130	Boat, AL, 130mg, 10/pk
770-0200	Stirrup, open, 19 x 19 x 9mm, 8mg
770-0230	Stirrup, platform, 22 x 41 x 20mm
770-0220	Stirrup, platform, 60 x 20 x 38mm

Orion Star Series Meters

- Simple 3-button operation
- Bright LCD display with ready indication
- Up to 10 stored methods, with password protection
- Convenient, built-in Quick Start Guide
- Comprehensive GLP features including 21CFR Part II Software
- 3 year replacement warranty
- Universal power adapter for worldwide operation
- Consistent user interface across all meter types
- 200 points datalogging
- Dustproof and waterproof
- Auto read / hold function
- Advanced self-tests on meter operation, comprehensive self-diagnostics
- Automatic recognition of NIST/US and DIN buffers
- Selectable calibration to winkler titration for BOD measurement
- Selectable automatic blank correction
- Built-in smart stability and smart averaging functions
- Automatic or manual temperature compensation
- Stirrer & AUTO-STIR probe control
- Simultaneous display of all readings



Orion 2-Star

pH Meter Benchtop

- pH, mV and temperature measurements in a splashproof benchtop meter
- 1, 2 or 3 point calibration
- Simple push button keypad
- Auto calibration for USA and EURO buffers



Orion 3-Star

Portable and Benchtop

- pH Meter
- Conductivity Meter
- Dissolved Oxygen Meter



Orion 4-Star

Portable and Benchtop

- pH / ISE Meter
- pH / Conductivity Meter
- pH / DO Meter



Orion 5-Star

Portable and Benchtop

- pH / ORP / ISE / Conductivity / DO Meter





Star Series Meters

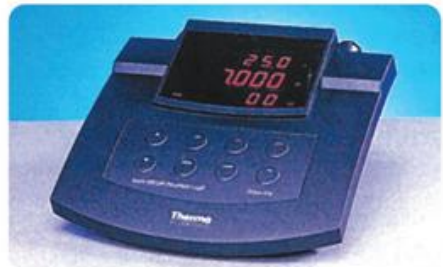
Specifications

Resistivity	Range	0.0001 to 100 Megohm
	Resolution	Automatic
	Relative Accuracy	0.5% ± 1 digit
Salinity	Range	0.01 to 80.0 ppt NaCl equivalent, 0.01 to 42 ppt practical salinity
	Resolution	0.01
	Relative Accuracy	± 0.1 ± 1 digit
TDS	Range	0 to 19999
	Resolution	1 mg/L
DO	Concentration Range	0.00 to 90.0 mg/L
	Resolution	0.0, 0.00 mg/L
	Relative Accuracy	± 0.2 mg/L
	% Saturation Range	0.0 to 600 %
	Resolution	0, 0.0 %
	Relative Accuracy	± 2 %
	Calibration Features	Water Saturated Air, Air Saturated Water, Manual (Winkler), and Zero Point
	Probe Type	Polarographic
Temperature	Range	-5 to 105°C
	Resolution	0.1 up to 99.9°C, 1.0 over 99.9°C
	Relative Accuracy	± 0.1°C

Specifications

pH	Range	-2.00 to 19.999
	Resolution	0.1, 0.01, 0.001
	Relative Accuracy	± 0.002
ISE	Range	0 to 19900
	Resolution	1, 2, or 3 significant digits
	Relative Accuracy	± 0.2 mV or 0.05%, whichever is greater
	Units	M, mg/L, %, ppb, or no units
	Calibration Features	Linear point to point, non-linear selectable auto-blank, low concentration range stability
	mV	Range
	Resolution	0.1
	Relative Accuracy	± 0.2 or 0.05%, whichever is greater
Conductivity	Range	0.000 to 3000 mS/cm, auto resolution with cell constant dependence
	Resolution	4 significant digits down to 0.001 µS/cm cell constant dependent
	Relative Accuracy	0.5% ± 1 digit or 0.01 µS/cm whichever is greater

PerpHect® LogR™ Meters



All PerpHect benchtop meters feature exclusive digital LogR technology. pH is temperature dependent, so knowing the temperature at which the pH was taken is critical. Only one electrode is needed to take both pH and temperature measurements and both measurements are taken at the same location, the pH sensing bulb. PerpHect pH electrodes are available in a wide variety of styles and sizes, but the greatest accuracy and precision benefit of LogR technology is with small samples.

Specifications 370 / 350 / 320

pH	Range	0.000 to 14.000 / 0.000 to 14.000 / 0.00 to 14.00
	Resolution	0.001 to 0.1 / 0.001 to 0.1 / 0.01 to 0.1
	Relative Accuracy	± 0.005 / ± 0.005 / ± 0.02
	Slope	80 to 120%
	Auto-Buffer Recognition	4.01, 7.00, 10.01
Cal. Points	3 / 3 / 2	
Concentration		
Range	0.000 to 19900 / - / -	
Resolution	± 3 significant digit / - / -	
Relative Accuracy	± 0.2 mV or ± 0.5 % of reading, whichever is greater / - / -	
Cal. Points	2 / - / -	
Temperature*		
Range	0.0 to 100.0 °C	
Rel. Accuracy	± 0.1 °C (ATC) ± 0.5 °C (LogR)	
Millivolt and Relative Millivolt		
Range	± 1999.9 mV and RmV/ ± 1999.9 mV and RmV/ ± 1999 mV only	
LogR Range	± 1000.0 mV / ± 1000.0 mV / ± 1000 mV	
Relative Accuracy (mV and RmV)	± 0.2 mV or ± 0.5 % of reading, whichever is greater / ± 1 mV or ± 0.1 % of reading, whichever is greater (mV only)	
Display		
LED		
Inputs		
1 BNC, 1 pin tip ref, ATC, power		
Outputs		
RS232, 2.5 mm Recorder / RS232, 2.5 mm Recorder / -		
Power Requirements		
AC Line, 110 V, 220 V or 240 V		
Agency Approvals		
CE, CSA, IUL		
Environmental Requirements		
5 to 45 °C, 5 to 85% relative humidity, non-condensing		



Intrinsicly Safe* Meters

- For use where non-sparking equipment is desired, these carry US intrinsically safe approval rating by Factory Mutual (FM)*
- Waterproof, portable models for basic field measurements
- Meters include advanced GLPdoc 100 point datalogger with time and date stamp and includes software program for simplified data collection and remote operation on a computer.

(* Does not meet European Intrinsicly Safe specification)

Specifications (Type)	266S / 261 S (pH/mV)	136S / 131S (Conductivity)
pH	Range	-2.00 to 16.00
	Accuracy	0.01
	Calibration Points	3
Temperature*	Range	-20.0°C to 120.0°C
	Relative Accuracy	± 0.3°C
mV	Range	± 1300.0 mV
	Accuracy	0.1% value + 0.30
Conductivity	Range	0.00 µS/cm to 500.0 mS/cm, cell constant dependant
	Accuracy	< 0.5% of measure value + 1 count
	Resolution	0.01 at <99.99 µS/cm, 0.1 at >99.99 µS/cm
Salinity Range	-	0.0 to 45.0 (10 to 30°C)
Total Dissolved Solids Range	-	0 to 1999mg/L (10 to 40°C)
Cell Constant Range	-	0.010 cm ¹ to 199.0 cm ¹
Display	Custom LCD	Custom LCD
Inputs	Waterproof DIN, Dual Banana Plug	Waterproof DIN, Dual Banana Plug
Outputs	RS232	RS232
Power Requirements	3 alkaline AA batteries	3 alkaline AA batteries
Agency Approvals	FM (intrinsically safe)	FM (intrinsically safe)
Environmental Requirements	-10°C to 55°C	-10°C to 55°C



Orion AQUAfast IV Colorimeter



The AQ4000 colorimeter stores up to 189 pre-programmed methods and can record 100 data points in the field with a time and date stamp. Download later to a printer or computer in the lab.

The AQ4000 colorimeter takes all the guesswork out of sample preparation with the Auto-Test™ Ampoules and exclusive feature - Auto-ID™.

Quality of the measurement is assured since the ampoules are only opened when a measurement is about to be taken.

The most advanced microprocessor-based LED colorimeter on the market today!

- **Auto-ID™:** Automatically identifies the species to be measured, selects the method and the wavelength plus it initiates the method! No buttons to push!
- **Auto-Test™ Ampoules:** Pre-measured liquid reagent ampoules are specially designed to work with the AQ4000.
- **Powders:** Pre-measured and ready-to-use packets. Just add the packet to the sample, allow it to dissolve and then take your measurement. Powders can be used with any colorimeter on the market.
- **COD Reagents:** Available in three measurement ranges - low, mid and high range.

Selection of display units is push-button easy. Choose from concentration, absorbance, or percent transmittance. The AQ4000 accepts round ampoules with diameters of 13, 16 or 24mm. Best of all, the AQ4000 carries a full two-year warranty.

The AQ4000 can also be used with the our tablets or powders.

- **Tablets:** Quick dissolve and easy to add to the sample. Tablets can be used with the AQUAfast II and IV colorimeters.

Updating the AQ4000 with new methods is as simple as it gets!

The latest software updates are available at www.thermo.com/water. A simple download procedure updates the colorimeter with the most current programs in a few quick, easy steps.

Water Quality Kits

The AQ4000 is available in water quality kits that include all application appropriate tests and equipment.

Orion AQUAfast II Colorimeters

Available in 12 models to allow measurement of over 25 species!



The lightweight AQUAfast II colorimeters have an easy to use three button interface that ensures error free measurements. Designed for single parameter methods in the field or the lab.

Easy to use, lightweight microprocessor-based colorimeters.

- EPA approval for chlorine total tablets and powders.
- Simple, three-button user-interface to ensure error-free readings.
- Rapid dissolving compact tablets with a long shelf life
- Battery operated - ideal for the field or lab use.
- Test procedures based on methods accepted by regulatory agencies throughout the world
- Includes a rugged carrying case, cuvettes (vials), stir rod and instruction.

Orion AQUAfast Turbidity and COD Products

The AQ4500 offers ratiometric range, which will give EPA, GLI method 2 equivalent numbers.



The AQ4500 Turbidimeter has dual source LED which allows reading that comply with both EPA 180.1 and ISO 7027 methodologies.

- Nephelometric and Ratiometric measurements with autoranging
- Data log capacity of up to 100 data points
- Readings in the range of 0 - 1000 NTU with a choice of units: NTU, FTU, FNU, ASBC or EBC.
- Includes turbidity standards kit, rugged carrying case, and replacement cuvettes.
- The AQ4500 is truly IP67 waterproof to a dept of 3 meters
- Chemical Oxygen Demand (COD) chemistries comply with EPA guidelines and work with the AQUAfast II or IV colorimeters.
- Ideal for environmental and wastewater monitoring
- Convenient, ready to use reagent vials available in three ranges: 0-150 mg/L, 0-1, 500 mg/L and 0-15,000 mg/L
- COD reactor has a wide range of preset temperatures and preset times
- Substantially reduces waste disposal - smaller reagent volumes and reduced danger of spills



Sage Syringe Pumps

- Sage Ruggedness and Reliability
- Easy-to-use
- Versatile Pump Used in a Variety of Industries

Rugged, user-friendly Sage pumps are used to inject samples into analytical equipment, such as AA spectrophotometers, or in biomedical research. Driven by a precision stepper motor with self-lubricating gears for long life, the pumps maintain uniform flow at all speeds. Accommodates one syringe from 10 μ L to 100 mL, or any three syringes up to 60 mL each. Spring-loaded holder secures syringe in position. Adjustable endpoint limiter to protect syringe during infusion or withdrawal (M362). The durable pump case is molded from high-impact resin. Syringes must be ordered separately. Not for use on humans.



960 Titrator

The 960 titrator is designed to overcome problems of sample throughput or analytical complexity. This versatile instrument can be used for classical titrations and automated analysis of any complex species measurable by ISE and pH electrodes. Utilizing 12 pre-programmed analysis techniques it is easy to operate.

The dispenser is a zero-dead-volume rotary reciprocating pump. Quick-release fittings make it fast and easy to disconnect one bottle and connect another. For maximum versatility, you can integrate up to eight auxiliary dispensers and an autosampler into one system.



950 ROSS® FASTQC™ Titrator

This economical yet versatile potentiometric titrator performs acid/base titrations, including non-aqueous samples, oxidation-reduction, precipitation and complexometric titrations using ion selective electrode and ROSS pH Technology to deliver fast, accurate titrations. Its unique Assured Accuracy feature can perform a gravimetric calibration of the entire dispensing system, making it easy to meet ISO 9000 and GLP requirements.



Turbo2® Volumetric Blending Titrator

The system comes with a powerful blender to break up and blend solid samples, such as food products or dry pharmaceuticals, assuring complete moisture extraction from the sample into solution with little or no sample preparation. The titrator has a fully automated fill and drain pumping system to minimize reagent handling. A large 720 mL vessel allows for multiple sample analysis as well as easy vessel access and cleaning. An optional water jacketed vessel is available to enhance moisture extraction in difficult samples.



AF8 Volumetric Titrator

Rapid determination of moisture from 50 ppm to 100% moisture in a wide range of materials is possible with the AF8. The peristaltic pump's unique, continuous titrant dispensing system eliminates the inconvenience of refilling burettes. Top-entry vessel opening can accommodate a syringe needle for liquids or solid samples up to 23 mm across.



AF7 Coulometric Titrator

Utilizing the extremely accurate technique of iodine generation, the AF7 coulometric titrator takes moisture measurement to new limits of accuracy and performance within a wide measuring range of 1 ppm to 100% H₂O. It is a universal titrator for measuring both high and low moisture giving the user reliable results with unmatched speed of 20,000 micrograms (20 mg) of water titrated per minute.



AutoTration™ - 500 Autosampler

The AutoTration - 500 autosampler performs analyses, calibrations and standardization procedures automatically. It improves data quality by using up to five rinse stations. Durable and corrosion resistant, the sealed electronics chassis and coated metal parts protect against the harsh chemical environments. The autosampler is available with either a 50 mL or 150 mL beaker rack and accessories. It is compatible with the 960 Titrator PLUS, for automated ISE techniques and titrations, and meters with autosampler capability.



BOD AutoEZ®

- Reads 36 BOD samples in 15 minutes or less
- Automatically calculates results according to Standard Methods (52.10) for the Examination of Water and Wastewater.
- Customizable report and export options for interfacing with LIMS

The BOD AutoEZ utilizes robotics to measure dissolved oxygen and BOD (Biochemical Oxygen Demand) of water and wastewater. Its powerful software package and patented multiple probe design focuses on maximizing data quality and sample throughput, reducing labor costs, and ensuring consistent, accurate results.

Unique Features

- Microsoft Windows based software monitors and documents probe calibration, performance, noise and stability
- User selectable calculation protocols allow the customer to express dilutions as percent or volume and calculate seed correction from direct seed addition or seeded dilution water.

Additional Features

- Automatic temperature compensation
- Built-in probe rinse system eliminates sample carryover

Reporting Features

- User defined criteria for flagging outlying dilutions or sliding BOD readings.
- Extracts and flags samples that exceed Quality Assurance guidelines
- Tracks and applies multiple seed correction factors as needed.