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Easy-to-use, Workhorse Spectrophotometers That Never Go Out of Style

For over fifty years, Spectronic™ 20 spectrophotometers have met our customers' needs for a simple, practical laboratory instrument for basic testing and teaching. The Spectronic 20 name has become synonymous with longevity, reliability, and quality. It remains a key tool in the classroom for teaching future chemists and a proven 'workhorse' instrument for the quantitative analysis of wastewater, foods and beverages, and more.

Thermo Electron Corporation offers this classic spectrophotometer in two models to meet your laboratory needs for low-cost instrumentation that is easy-to-use, reliable, and produces accurate results.

Meet the Demands of Your Busy Lab

If high-productivity instrumentation is essential to the success of your laboratory, count on the Spectronic 20 spectrophotometer. Even new users can quickly get reliable results with minimal training. The system still has all the capabilities that have given the Spectronic 20 spectrophotometer its well-known reputation for simple operation and reliability, as well as various product improvements that have enhanced this reputation.



System Benefits

- Save valuable bench space with its compact and lightweight design
- The 340 to 950 nm wavelength range allows you to perform a wide variety of spectrophotometric analyses, from enzyme analysis at 340 nm to phosphates at 880 nm.
- Optimize your results with the simple Filter Selection Lever – changing filters doesn't get any easier than this. Just push the lever to move the correct filter into place.
- Easy-to-Read Digital Display makes set-up fast and easy on the Spectronic 20D+ model, and gives you clear, quick, and accurate readings in:
  - *0 - 100 %Transmittance*
  - *0 - 1.95 Absorbance*
  - *0 - 1999 Concentration (with a factor value of 0.1 - 1000)*
- Reduce reading and recording error with the Direct Computing and Printer Interfacing of the Spectronic 20D+ model – print control is built-in. A single cable connects your computer or printer, reducing costs and saving bench space. Just push the PRINT button on the front panel to send data to your printer. Or you can interface with your computer to create a system for data manipulation, management, and recordkeeping.
- Save time with the Concentration Mode of the Spectronic 20D+ model. There is no need to manually construct standard curves for each analysis. First, set the concentration using a standard solution, then place the unknown sample in the instrument, and read the concentration on the display. If no standard is available, simply input the concentration factor.

Accessories Add Power and Flexibility

The Spectronic 20's versatile sample compartment holds a variety of adapters, cuvettes, and test tubes for running a diverse range of chemical tests. Sample volumes as low as 0.75 ml reduce waste and lower reagent costs. Cell pathlengths up to 1" allow you to measure low absorbing samples without the additional time and cost of physically concentrating your samples. Additional accessories include:

- **Filter Kit –** contains optical filters that reduce stray light to less than 0.5%T. A didymium filter is also included to verify wavelength accuracy.
- **Spectronic Standards –** low-cost certified standards, traceable to N.I.S.T.[1], check the performance and accuracy of your spectrophotometer. Tests include 0%T, stray light, wavelength, and photometric accuracy.
- **Teaching Aids –** help support classroom instruction including:
  - *Educational Manual (includes 10 classroom experiments)*
  - *Educational Absorption Spectra Kit (demonstrates principles of absorbance and transmission in spectrophotometry)*
  - *Absorption Spectroscopy Wall Chart (visually illustrates the principles of spectrophotometry)*



[1] *National Institute for Standards and Technology, USA*





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Expand Your Capabilities With Applications Software

Spectro *Pro*® software is an optional, user-friendly software package that allows you to perform a wider range of analyses and gives you greater data manipulation capabilities. Obtain the results you need – in the form you need.

- Collect Absorbance vs. Time data to measure the change in absorbance of your sample over time and to perform kinetics studies.
- Collect Absorbance vs. Concentration data to produce a Beer's law graph for the determination of the concentration of your analyte.
- Collect Absorbance vs. Wavelength data to produce an absorption spectrum.
- Print and store tabular data, and print your Beer's Law graph, Abs vs. time graph, or absorption spectrum.
- Conveniently choose one of three modes of data collection from buttons on the toolbar.
- View data graphed in real time.
- Easily calibrate the spectrophotometer by following on-screen prompts.
- Use ready-to-go experiment files.
- Create calculated spreadsheet columns.
- Perform curve fits on data.
- Do statistical analysis of data.

Affordable

The Spectronic 20 spectrophotometer is a practical, useful tool that lab managers know they can rely on for their every day laboratory applications. No other spectrophotometer gives you the range of functionality and reliability at such an affordable price.

Comprehensive Support

When you bring Thermo Electron products into your lab, you can depend on reliable instruments and expert service. Our knowledgeable staff is ready to assist you with your applications or service questions. And for your complete peace of mind, the Spectronic 20 spectrophotometer is backed by our three-year warranty.





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Product Specifications

	Spectronic 20+ Part Number 333182000 Series	Spectronic 20D+ Part Number 333183000 Series
Spectral Slit Width	20 nm	20 nm
Wavelength Range	340 to 950 nm	340 to 950 nm
Wavelength Accuracy	+/- 2.5 nm near 525 nm	+/- 2.5 nm near 525 nm
Display	Meter 5 1/2" mirrored scale, linear %T, non-linear Abs	LED %T, Abs, Conc, Concentration Factor Wavelength
Photometric Range	0 to 100%T 0 to 2 A	0 to 100%T 0 to 1.95 Abs 0 to 1999 Conc 0.1 to 1000 Concentration Factor
Photometric Accuracy	+/- 2%T	+/- 2%T
Photometric Noise	+/- 0.5%T	+/- 0.5%T
Photometric Drift	1.0%T/Hour	1.0%T/Hour
Accessory Output	1.0 VDC nominal at 100%T	1.0 VDC nominal at 100%T RS-232C Serial I/O Port
Stray Radiant Energy	< 0.5%T over entire wavelength range*	< 0.5%T over entire wavelength range*
Power Requirements	100/115 V, 50/60 Hz; 220/240 V, 50/60 Hz	100/115 V, 50/60 Hz; 220/240 V, 50/60 Hz
Dimensions	41.3 W x 21 H x 33 D cm (16 1/4" x 8 1/4" x 13")	41.3 W x 21 H x 33 D cm (16 1/4" x 8 1/4" x 13")
Weight	8.2 kg (18 lbs)	8.2 kg (18 lbs)

** When measured with appropriate accessory filter (accessory filter kit 333129000)*

Ordering Information

Accessories	
33290910030	Educational Manual. Contains spectrophotometry theory and experiments for the Spectronic 20+ and Spectronic 20D+
333114000	Absorption Spectroscopy Wall Chart
333135000	Educational Absorption Spectra Kit
333129000	Accessory Filter Kit. Includes four (4) stray light/second-order filters and one (1) didymium filter
333150000	Spectronic Standards (requires 333176000 Cuvette Holder)
333174000	Patch cord to connect a Spectronic 20+ or Spectronic 20D+ to a recorder
335488000	40-column thermal printer for the Spectronic 20D+, 110 V (requires 333132000 cable), US plug
33548802	Same as 335488000 except 230 V
333132000	RS-232C cable for printer/computer
333193000	Spectro *Pro* software (requires 333132000 cable)

Glassware & Adapters	
331713000	Semi-micro cuvettes, 10 mm pathlength, 0.75 ml minimum volume, 45 mm tall optical glass, matched set of two
331709000	Square cuvettes, 10 mm pathlength, 45 mm tall, optical glass, matched set of two (2) in case (requires 333176000 holder)
331701000	Square cuvettes, 1/2" pathlength, 100 mm tall, set of two (2) in case, optical glass (requires 333178000 Adapter included with instrument)
333176000	Holder for 10 mm square cuvettes and Spectronic Standards
331780000	1/2" test tube cuvettes, 100 mm tall, optical glass, box of 12 (included with instrument)
331781000	3/4" test tube cuvettes, 150 mm tall, optical glass, box of 12 (requires 332931000 Adapter and 332932000 Light Shield)
332931000	Adapter for 3/4" test tube cuvettes (requires 332932000 Light Shield)
331782000	1" test tube cuvettes, 150 mm tall, box of 12, optical glass (requires 332930000 Adapter and 332932000 Light Shield)
332930000	Adapter for 1" test tube cuvettes (requires 332932000 Light Shield)
332932000	Light Shield for test tube cuvettes to 150 mm tall

In addition to these offices, Thermo Electron Corporation maintains a network of representative organizations throughout the world.

Australia
+61 2 9898 1244 • analyze.au@thermo.com
Austria
+43 1 333 50340 • analyze.at@thermo.com
Belgium
+32 2 482 30 30 • analyze.be@thermo.com
Canada
+1 800 532 4752 • analyze.ca@thermo.com
China
+86 10 5850 3588 • analyze.cn@thermo.com
France
+33 1 60 92 48 00 • analyze.fr@thermo.com
Germany
+49 6103 4080 • analyze.de@thermo.com
Italy
+39 02 950 591 • analyze.it@thermo.com
Japan
+81 45 453 9100 • analyze.jp@thermo.com
Netherlands
+31 76 587 98 88 • analyze.nl@thermo.com
Nordic
+46 8 556 468 00 • analyze.se@thermo.com
South Africa
+27 11 570 1840 • analyze.sa@thermo.com
Spain
+34 91 657 4930 • analyze.es@thermo.com
Switzerland
+41 61 48784 00 • analyze.ch@thermo.com
UK
+44 1442 233555 • analyze.uk@thermo.com
USA
+1 800 532 4752 • analyze.us@thermo.com

www.thermo.com

ISO 9001 certified

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