



US/Canada Price List in US Dollars May 2010

(Prices subject to change without notice)

Instruments Designed for Teaching

Diode Laser Spectroscopy, DLS1-A*

Complete Instrument \$ 15,695.00

Includes: Laser Head · 2 Diode Lasers (tested) · Complete Electronics (*Laser Controller, Cell Temperature Controller, Detector Electronics*) · 3 Photodiode Detectors with preamp · IR Viewing Card · CCD Camera · TV Monitor · Optics with all mounts and bases (*5 Mirrors, High Power Neutral Density Filter, 2 Neutral Density Filter sets with holder, 0.5° Optical Beam Splitter, 1° Optical Beam Splitter, 2-50/50 Beam Splitters, Flat Beam Splitter, 2 Rotating Linear Polarizers, 2 Rotating 1/4-Wave Plates*) · Absorption Cell Assembly (*Rb Cell, Helmholtz Coils, Cell Heater, Rotating Stand*) · 2 Safety Goggles · Special Tools · Black Anodized Aluminum Optical Bread Board 24" x 36" x 1/2" · Instructor/Student Manual

* **Magnetic field experiments require a separate current controlled power supply.**
(See recommended accessory.)

Premium Instrument \$ 16,965.00
(Includes Fabry-Perot Cavity)

Complete without Breadboard \$ 14,985.00

Basic Experiments, DLSB1-A \$ 14,455.00
This system **does not include** optics needed for simultaneous interferometry or several magnetic field experiments. Items Deleted: 1 Photodiode Detector (Center), 2 Mirrors, 2° Beam Splitter, 1 50/50 Beam Splitter, Flat Beam Splitter, 2 Rotating Linear Polarizers, 2 Rotating 1/4-Wave Plates

Diode Laser and Controller, DLHC1-A. . \$ 10,254.00

Includes: Laser Head · 2 Diode Lasers (tested) · Complete Electronics (with cell temperature controller and detector electronics) · Manual · 2 pair Mandatory Safety Goggles

Optical Detector, DLOD1-A \$ 342.00
Includes: Complete Mounting Hardware · Photodiode with Low-Noise Preamp · Hood

Absorption Cell Assembly \$ 2,494.00

Recommended Accessories:

Fabry-Perot Cavity FP1-A
(if purchased within one semester) \$ 1,270.00
Auxiliary Power Supply for Magnetic Experiments
Texio PR36-3A (36 Volts, 3 Amps) \$ 579.00

Earth's Field NMR, EFNMR1-B*

Complete System including Gradient/Field Coil. \$ 7,130.00

Includes: Sample and Bucking Coil · Electronics for Sample and Bucking Coil (*Polarization Timer, High-Q Tuned Amplifier, Tuning Controls, Sound Amplification, Built-In Speaker*) · 2 Sample Holders · Gradient/ Field Coil System (*x,y,z Gradient Coils, Helmholtz Field Coils, Controller with Built-In Gradient Coil Power Supply*) · Segmented Sample Holder with filling syringe · Dip Needle Compass · All Connecting Cables · Instructor/Student Manual

Premium System \$ 7,990.00
(Includes 2 Texio Power Supplies)

Partial Systems Available:

Basic Instrument, EFNMR1-A* \$ 4,685.00

Includes: Sample and Bucking Coil · Electronics for Sample and Bucking Coil (*Polarization Timer, High-Q Tuned Amplifier, Tuning Controls, Sound Amplification, Built-In Speaker*) · 2 Sample Holders · All Connecting Cables · Instructor/Student Manual

Basic with Texio Supply \$ 5,115.00

Earth's Field NMR Gradient/Field Coil System, EFGFC1-A * \$ 2,738.00

Includes: x,y,z Gradient Coils, Helmholtz Field Coils, Controller with Built-In Gradient Coil Power Supply · Dip Needle Compass · Segmented Sample Holder with filling syringe · All Connecting Cables · Instructor/Student Manual

G/F Coil with Texio Supply \$3,168.00

* **These systems require separate current controlled power supplies such as the Texio PR36-3A**

Recommended Accessories:

NEW Spin Flip Coils . (Introductory Price) 129.00
Texio PR36-3A Power Supply 579.00
Extra Sample Holders 3.20
Additional Segmented Sample Holder with filling syringe 89.00
Fluorine Liquid Samples: (non-volatile, non-toxic):
Perfluoropolyether Fluid HT-110. 38.00
Perfluoropolyether Fluid HT-70 38.00
Perfluoropolyether Fluid PFS-2 38.00
Adjustable Height Non-Magnetic Stand only to use EFNMR1-A independently 207.00

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Fabry-Perot Cavity, FP1-A

Basic Instrument* \$ 1,436.00

Includes: Confocal 20 cm Cavity {Free Spectral Range - 375 MHz, Finesse ~ 100, Mirror reflectivity >99%, Center Freq., 780 nm., band width (99% reflectivity) 80 nm}
· Iris · 2 Support Posts with bases · Manual

***FP1-A requires a variable frequency laser**
(Side bands observable with DLS1-A & RF signal generator)

Faraday Rotation, FR1-A

Basic Instrument * \$ 1,055.00

Includes: Laser Light Source · Solenoid · High Verdet Constant Glass Rod · Optical Detector · Linear Polarizer in Calibrated Rotating Mount · Mounting Base · Instructor/Student Manual

Premium Instrument * \$1,395.00

(Includes Power/Audio Amplifier PAA1-A)

3 or more Premium units 1,365.00

Recommended Accessories:

Additional Glass Rod 100.00

Liquid Cell 142.00

Power/Audio Amplifier 355.00

Texio PR36-3A (36 Volts, 3 Amps) 579.00

***NOTES – FR1-A requires power supplies**

Laser: Voltage regulated supply, 4 volt, 40 mA, such as PAA1-A. PAA1-A can also provide the Audio Amp function for AC measurement.

Solenoid: Current regulated supply capable of 3-5 A
AC Measurement needs a Lock-In such as SPL11-A

Hall Effect Probe, HE1-A

Complete Instrument \$ 335.00

(5% discount when purchased with MF1-A)

3 or more units 323.00

Includes: Probe with axial and radial detectors · Non-magnetic base and support rod · Calibration Kit (Helmholtz 4" coil form, support for coil form, 4 spools of wire for student use.)

Hall Effect Calibration Kit,

HECK1-A \$ 25.00

Includes: Helmholtz 4" coil form, support for coil form, 4 spools of wire for student use

Magnetic Force, MF1-A

Complete Instrument * \$ 435.00

5 or more units 415.00

Includes: Helmholtz Coils · Tower with Cap · Magnetic Dipole in Gimbal · Calibrated Spring · 1 g weights (set of 5) · Instructor/Student Manual

Replacement Parts:

Tower with Cap 49.00

Magnetic Dipole in Gimbal 46.00

Brass Rod 1.60

Spring 8.50

1 g weights (set of 5) 1.60

***MF1-A requires a 36 volt, 3 A, current regulated power supply such the Texio PR36-A (See stand alone accessories.)**

Magnetic Torque, MT2-B

Complete Instrument \$ 2,955.00

Including Magnetic Force Balance Kit

3 or more units 2,783.00

Includes: Magnet Coils · Air Bearing · Power Supply · Air Pump · Electronics for Strobe Light and Counter · One Magnetic Sphere · Magnetic Force Balance Kit · Rotating Magnetic Field · Gravitational Torque Arms and Sliding Weight · Instructor/Student Manual

Recommended Accessories:

Magnetic Force Tower Kit 106.00

Includes: Dipole in Gimbal, Spring, Weights, Tower with Cap

Replacement/Additional Parts:

Additional Magnetic Sphere 64.00

Replacement Air Pump 80.00

Replacement Flash Lamp 16.00

Replacement Torque Arm 6.00

Sliding weight for Torque Arm 7.00

Without Rotating Magnetic Field, deduct \$ 130.00

Without Magnetic Force Balance, deduct \$ 140.00

Magnetic Torque Magnetic Balance Kit,

MTMFB1-A \$ 186.00

Includes: Balance Beam with Knife Edge · Support with Ceramic Bearings · Counter Weight · Small Weights · Reference Marker

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Modern Interferometry, MI1-A

Complete Instrument* \$ 14,314.00

Includes: Kit contains all elements to configure Michelson, Sagnac or Mach-Zehnder Interferometers and to perform a wide variety of experiments. Proprietary Apparatus: *Translational Stage, High Stability Mirror Mounts (3), Optics for Quadrature Detection, Large Area Photodiode Detectors (2), Solenoid, Pressure Transducer, Light Sources (4), Electronics for Fringe Counting – (optics with bases)* All Parts for Experiments on: *Index of Refraction of Gas, Electro-optic Effect, Magnetostriction, Piezo Electricity, Thermal Expansion, White Light Fringes, and Absolute Spatial Dimension.* · Optical Breadboard with Stabilizers · Student/Instructor Manual

A detailed list of components is posted on the TeachSpin website and is available on request..

* **Customer must supply power for white light source Magnetostriction experiments require a current regulated 36 volt, 3 A powers supply such the Texio PR36-A (See stand alone accessories.)**

Complete without Breadboard . . . \$ 13,750.00

Optical Detector, MIOD1-A \$ 371.00

Includes: Complete Mounting Hardware · Large Diameter Photodiode with Low-Noise Preamp

Flexure Mirror Mount, MIMM1-A \$ 403.00

Includes: High-Stability Flexure Mirror Mount · Base · Extra Mirror (Please specify Horizontal or Vertical Hinge)

Flexure Translation Stage, MITS1-A \$ 638.00

Includes: Proprietary Translation Stage · Push rod translation lever · V-block support

Differential Micrometer \$ 454.00

Includes: micrometer · base · spline

Magnetostriction Kit, MIMS1-A \$ 390.00

Includes: Solenoid · Test Samples (Cu, Fe, Ni)

Refraction of Gas Kit MIRG1-A \$ 1,047.00

Includes: Optical Gas Cell with post · Gas Handling Manifold with Connective Tubing · Pressure Transducer (requires power supply if not used with MI Controller)

Piezoelectric Translator \$ 109.00
requires user supplied signal generator

Dielectric Beam Splitter with base \$ 414.00

Metallic Beam Splitter with base \$ 490.00

Muon Physics, MP1-A

Complete Instrument* \$ 4,957.00

Includes: Detector Module containing Scintillator, Photomultiplier, High Voltage Power Supply, LED with Variable Pulser · Electronics · Software with Source Code Instructor/Student Manual

***Requires User Supplied Computer**

Noise Fundamentals, NF1-A

Complete Instrument \$5,950.00*

Includes: High-Level Electronics Controller, Low-Level Electronics Controller, Temperature Module w/ Probe, Break-out Box, Clear Dewar in Adjustable Height Support, Coax Cables, 45 Watt +/-15 Volt Power Supply, Hook Up Wire, Resistors, Transistors, Diodes, Photodiode in Holder, Light Bulbs and LEDS, Spare Operational Amplifiers, Instructor/Student Manual (**Requires User supplied Low End Digital Oscilloscope, a Function Generator and a Good digital Voltmeter**)

***Introductory Price for 1st Ten Units Sold**
Price will increase to \$6,550

Optical Pumping, OP1-E

Complete Instrument* \$ 13,650.00

Includes: High Homogeneity Horizontal and Vertical Magnetic Field Coils on Base · Complete Optical System (*Rubidium Light Source, Absorption Cell, Interference Filter, Linear Polarizer, $\lambda/4$ Wave Plate, Optical Rail, Optical Detector/Preamplifier, Lenses*) · Cell Heater · Complete Electronic Controller (*RF Amplifier, Detector Amplifier, Horizontal Magnetic Field Sweep, Vertical Field, Temperature Controller, Internal Power Supply*) · Instructor/Student Manual

Recommended Accessories:

Non-Magnetic Table for Coils. 196.00
RF Signal Generator, (100 kHz – 450 MHz) . . . 239.00
Auxiliary High Current Power Supply,
Texio PR36-3A (36 Volts, 3 Amps) 579.00
Circuit Diagrams 75.00

Rubidium Lamp \$ 2,650.00

Available Independently, See Individual Components
REQUIRES Power Supply Capable of 28 V/0.5 A

***NOTES:**

- 1. For basic operation, OP1-E requires an RF Signal Generator, 100 kHz – 20 MHz.**
- 2. High Magnetic Field Experiments require an additional power supply \geq 36 V, 3 A. (See Recommended Accessories)**

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Power/Audio Amplifier, PAA1-A

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Complete Instrument \$ 355.00

Includes: Electronics described below, Universal
“Brick-on-a-rope” Power supply, Instruction Manual

Specifications

Freq. Range: DC-20 kHz
Gain: Variable
Max Outputs: 1.0 A (Peak), 10 Volt (Peak to Peak)
Laser Power Supply: 4.1V@ 0.1A

Pulsed NMR Spectrometer, PS2-A

Complete Instrument \$ 16,750.00

Includes: Magnet with Sample Head, Gradient Coils
and Temperature Stabilizer · Mainframe Electronics
(Power Supply, Receiver, Pulse Programmer, 21 MHz
OSC/AMP/Mixer. Lock-In Amplifier) · Gradient
Coil/Temperature Controller, 7 BNC Cables · AC
Power Cord · Sample Case with 50 Vials and Caps ·
Instructor/Student Manual

PNMR Without Magnet - Inquire

Recommended Accessories:

Circuit Diagrams 75.00

Replacement Parts: 50 Vials with Caps 65.00

Quantum Analogs QA1--A

Complete Instrument* \$ 4,435.00

Includes: Atom-Molecule Models (4 Aluminum
Hemispheres - one with built-in speaker and
microphone, one with built-in microphone) · Band
Gap Model (base, speaker, microphone, 2 sets of
cylinders, 3 sets of iris) Complete Electronics (AC low
noise Amplifier, Amplitude Detector, Frequency to
voltage converter) · Instructor/Student Manual

Recommended Accessory:

Function Generator **Inquire**

* QA1-A requires a Sine wave generator capable of
producing 1-50 kHz with a peak-to-peak voltage
of 0.50 V such as the Protek B8003FD.

Signal Processor/Lock-In Amplifier, SPLIA1-A

Complete Instrument \$ 2,490.00

Includes: Preamplifier · Filter · Low-Pass
Amplifier · Oscillator · Phase Shifter · Noise
Generator · Attenuator · Amplitude and Lock-In
Detector · Seven Short BNC Cables ·
Instructor/Student Manual

Recommended Accessory:

Power/Audio Amplifier PAA1-A \$ 355.00

Circuit Diagrams 75.00

Sonoluminescence, SL100-B

Basic Instrument* \$ 5,376.00

Includes: Control Unit Electronics · Horn · TNC
Horn Cable · Mounted Rectangular Cell with
Ring Stand · Heater with Cable · Hydrophone
Probe · AC Power Cord · Instruction Manual

Recommended Accessories:

Ramsey SG-560 Frequency Synthesizer 422.00

Photomultiplier (PMT) 714.00

Peltier Cooler Module with

Cylindrical Cell 1,733.00

Additional Cell (Cylindrical) 525.00

* SL100-B requires a Frequency Synthesizer.
(See Recommended Accessories.)

Torsional Oscillator TO1-A

Complete Instrument* \$ 2,485.00

Includes: INQUIRE

6 or more units 2,385.00

* Driven oscillation experiments require a function or
signal generator capable of 0.1 – 10 Hz. For high Q
measurements, a frequency resolution of 0.01 Hz will
be needed such as Protek B8003FD.

Two-Slit Interference,

One Photon at a Time, TWS1-B

Complete Instrument* \$ 5,975.00

Includes: U Channel with Optics · Power Supply ·
Cables · Detachable Detector System including
Photodiode and Photomultiplier · Instructor/Student
Manual

3 or more units 5,929.00

Replacement/Additional Parts:

Replacement Slits 69.00

Recommended Accessories:

Cricket, CR1-A 91.00

* Please Inquire - TWS1-B requires an
electronic counter.

Two-Slit's Cricket, CR1-A

Complete Instrument \$ 91.00

Includes: Electronics (convert individual 400 ns
TTL output pulses from a photomultiplier to 5 ms
internal pulses) · Piezoelectric Buzzer · Amplifier

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Stand Alone Accessories

Power Supply

Texio PR36-3A \$ 579.00
(Formerly known as Kenwood)

Ramsey SG560 Frequency Synthesizer

0 – 5 MHz \$ 422.00

RF Signal Generator

100 kHz – 450 MHz \$ 239.00

Individual Components

Breadboard \$ 916.00
Black Anodized Aluminum 24" x 36" x 1/2"

Breadboard with stiffening ribs . . . \$ 970.00

Rubidium Lamp \$ 2,650.00

Includes: Rb 9 mm diameter bulb, 75 – 90 MHz RF oscillator, 120 °C temperature regulated oven, Natural isotopic concentration with 3 Torr Xenon buffer
REQUIRES Power Supply Capable of 28 V/0.5 A

Interference Filter. \$ 432.00

Includes: mounted 2" diameter filter, Transmission at 795 nm > 75%, 780 nm < 5%

Photodiode Photodetectors

Spectral Range: 400 – 1000 nm, Variable Gain
Power Supply Required: ± 12 V

Includes: Complete Mounting Hardware · Large Diameter Photodiode with Low-Noise

Small Area (31 mm²) \$ 342.00
(Used in DLS & OP)

Large Area (100 mm²) \$ 371.00
(Used in Modern Interferometry)

High-Stability Flexure Mirror Mount

with Base and extra mirror \$ 403.00
Please Specify Horizontal or Vertical Hinge.

Flexure Translation Stage, MITS1-A . . . \$ 638.00

Includes: Proprietary Translation Stage · Push rod translation lever · V-block support

Differential Micrometer \$ 454.00

Includes: micrometer · base · spline

Magnetostriction Kit, MIMS1-A \$ 390.00

Includes: Solenoid · Test Samples (Cu, Fe, Ni)

Refraction of Gas Kit MIRG1-A \$ 1,047.00

(with Differential Pressure Transducer)

Includes: Optical Gas Cell with post · Gas Handling Manifold with Connective Tubing · Pressure Transducer (requires power supply if not used with MI Controller)

Differential Pressure Transducer . . . \$ 363.00

Max. Δ Pressure = ± 1 atm, Output: ± 10 V = ± 1 atm

Piezoelectric Translator \$ 109.00

user supplies signal generator

Dielectric Beam Splitter with base \$ 414.00

Metallic Beam Splitter with base \$ 490.00

Also Available

Training at TeachSpin Factory for TeachSpin customers \$ 500.00

Includes: Full day of on-site training at a mutually convenient time

“Security” Labels FREE

Includes: Set of 8 embarrassment labels – Funding provided by TF-SOS, “TeachSpin Foundation for a Secure and Operating Student Laboratory”