



International Price List in US Dollars May 2010

(Prices subject to change without notice)

Instruments Designed for Teaching

Diode Laser Spectroscopy, DLS1-A*

Complete Instrument \$ 17,783.00

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 Splitter, 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 \$ 19,222.00
(Includes Fabry-Perot Cavity)

Complete without Breadboard \$ 16,944.00

Basic Experiments, DLSB1-A \$ 16,378.00

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. \$ 11,618.00

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 \$ 388.00

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

Absorption Cell Assembly \$ 2,826.00

Recommended Accessories:

Fabry-Perot Cavity FP1-A
(if purchased within one semester) \$ 1,439.00
Auxiliary Power Supply for Magnetic Experiments

Earth's Field NMR, EFNMR1-Bi

Complete Instrument including Gradient/Field Coil System \$ 8,078.00

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

Partial Systems Available:

Basic Instrument, EFNMR1-Ai. \$ 5,309.00

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

Earth's Field NMR Gradient/Field Coil System, EFGFC1-Ai. \$ 3,102.00

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

Recommended Accessories:

NEW Spin Flip Coils . (Introductory Price) 141.00
Extra Sample Holders 4.00
Additional Segmented Sample Holder with filling syringe 101.00
Fluorine Liquid Samples: (non-volatile, non-toxic):
Perfluoropolyether Fluid HT-110. 42.00
Perfluoropolyether Fluid HT-70 42.00
Perfluoropolyether Fluid PFS-2 42.00
Adjustable Height Non-Magnetic Stand only to use EFNMR1-A independently 235.00

Training at TeachSpin Factory \$ 500.00

Includes: Full day of on-site training for TeachSpin customers on any combination of instruments. A mutually convenient time will be arranged.

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Fabry-Perot Cavity, FP1-A

Basic Instrument* \$ 1,627.00

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 * \$ 1,190.00

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 * \$1,576.00

(Includes Power/Audio Amplifier PAA1-A)

3 or more Premium units 1,542.00

Replacement/Additional Parts and Accessories:

Additional Glass Rod 113.00

Liquid Cell 157.00

Power/Audio Amplifier 402.00

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

Solenoid: Current regulated supply capable of 3-5 A
Laser: Voltage regulated supply, 4 volt, 40 mA, such as PAA1-A. PAA1-A can also provide the Audio Amp function for AC measurement.
AC Measurement needs a Lock-In such as SPLI1-A

Hall Effect Probe, HE1-A

Complete Instrument* \$ 380.00

3 or more units 361.00

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.*)

*** Notes**

1. **HE1-A requires an external voltmeter to measure the amplified Hall Voltage.**
2. **Self-contained power supply requires a 110 V AC power line or adaptor**
3. **5% discount when purchased with MF1-A**

Hall Effect Calibration Kit,

HECK1-A. \$ 29.00

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

Magnetic Force, MF1-A

Complete Instrument * \$ 492.00

5 or more units 469.00

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 57.00

Magnetic Dipole in Gimbal 50.00

Brass Rod 2.00

Spring 9.00

1 g weights (set of 5) 2.00

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

Magnetic Torque, MT2-A

Complete Instrument \$ 3,385.00

Including Magnetic Force Balance Kit

3 or more units 3,188.00

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 121.00

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

Replacement/Additional Parts:

Additional Magnetic Sphere. 71.00

Replacement Air Pump 93.00

Replacement Flash Lamp 21.00

Replacement Torque Arm 7.00

Sliding weight for Torque Arm 8.00

Without Rotating Magnetic Field, deduct \$ 135.00

Without Magnetic Force Balance, deduct \$ 150.00

Magnetic Torque Magnetic Balance Kit,

MTMFB1-A \$ 210.00

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* \$ 16,217.00

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 . . . \$ 15,578.00

Optical Detector, MIOD1-A \$ 420.00

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

Flexure Mirror Mount, MIMM1-A \$ 456.00

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

Flexure Translation Stage, MITS1-A \$ 723.00

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

Differential Micrometer \$ 511.00

Includes: micrometer · base · spline

Magnetostriction Kit, MIMS1-A \$ 441.00

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

Refraction of Gas Kit MIRG1-A \$ 1,185.00

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 \$ 123.00

requires user supplied signal generator

Dielectric Beam Splitter with base \$ 468.00

Metallic Beam Splitter with base \$ 554.00

Muon Physics, MP1-A

Complete Instrument* \$ 5,618.00

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 Computer5**

Noise Fundamentals, NF1-A

Complete Instrument \$6,550.00*

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 \$7,650**

Optical Pumping, OP1-E

Complete Instrument* \$ 15,437.00

Includes: Rubidium Lamp · High Homogeneity Horizontal and Vertical Magnetic Field Coils on Base · Complete Optical System (*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. 222.00
Circuit Diagrams 88.00

Rubidium Lamp \$ 2,961.00

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

Complete Instrument \$ 402.00

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 \$ 18,957.00

Includes: Magnet with Sample Head · Complete Electronics (*Power Supply, Receiver, Pulse Programmer, 15 MHz OSC/AMP/Mixer*) · 7 BNC Cables · AC Power Cord · Sample Case with 50 Vials and Caps · Instructor/Student Manual

PNMR Without Magnet - Inquire

Recommended Accessories:

Circuit Diagrams88.00

Replacement Parts:

50 Vials with Caps 72.00

Quantum Analogs QA1--A

Complete Instrument* \$ 5,026.00

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 \$ 2,834.00

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 \$ 402.00

Circuit Diagrams88.00

Sonoluminescence, SL100-B

Basic Instrument* \$ 6,088.00

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 . . . 482.00

Photomultiplier (PMT) 811.00

Peltier Cooler Module with

Cylindrical Cell 1,952.00

Additional Cell (Cylindrical) 592.00

* SL100-B requires a Frequency Synthesizer.

Torsional Oscillator TO1-A

Complete Instrument* \$ 2,879.00

Includes: INQUIRE

6 or more units 2,776.00

* 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 the Protek B8003FD.

Two-Slit Interference,

One Photon at a Time, TWS1-B

Complete Instrument* \$ 6,824.00

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

3 or more units 6,715.00

Replacement/Additional Parts:

Replacement Slits 76.00

Recommended Accessories:

Cricket, CR1-A 102.00

* Please Inquire - TWS1-B requires an electronic

Two-Slit's Cricket, CR1-A

Complete Instrument \$ 102.00

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 (120V)

Texio PR36-3A \$ 650.00
(Formerly known as Kenwood)

- NOTE: This is a 120V power supply. If you have a different voltage requirement - *power supply must be converted by end user* – instructions provided

Ramsey SG560 Frequency Synthesizer

0 – 5 MHz \$ 482.00

RF Signal Generator

100 kHz – 450 MHz \$ 278.00

Individual Components

Breadboard \$ 782.00

Black Anodized Aluminum 24" x 36" x ½"

Breadboard with stiffening ribs . . . \$ 822.00

Rubidium Lamp \$ 2,961.00

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. \$ 486.00

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) \$ 388.00

Large Area (100 mm²) \$ 420.00

High-Stability Flexure Mirror Mount

with Base and extra mirror \$ 456.00

Please Specify Horizontal or Vertical Hinge.

Flexure Translation Stage, MITS1-A . . . \$ 723.00

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

Differential Micrometer \$ 511.00

Includes: micrometer · base · spline

Magnetostriction Kit, MIMS1-A \$ 441.00

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

Refraction of Gas Kit MIRG1-A \$ 1,185.00

(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 . . . \$ 410.00

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

Piezoelectric Translator \$ 123.00

user supplies signal generator

Dielectric Beam Splitter with base . . . \$ 468.00

Metallic Beam Splitter with base \$ 554.00

Also Available

Training at TeachSpin Factory for

TeachSpin customers \$ 500.00

Includes: Full day of on-site training at a mutually convenient time . . . a nice addition to a US visit!

“Security” Labels FREE

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