OPTI 380B Intermediate Optics Laboratory

Electronic Instrumentation Identifier

ON THE BENCH

Digital Multimeters: Measures voltage, current and resistance. Some include frequency, capacitance and transistor properties.

Agilent 34401A Use for high precisioin, low uncertainty measurements and data logging with computer,



Wavetek 37XR Use for general purpose measurement of voltage, current, resistance, etc.



Oscilloscope: Measures voltage as a function of time

Tektronics TDS1002 w/ TDS2CMA Communications Module Adapter



Function Generator: Generates various waveforms (sine, square, triangle, ramp pulse) at various frequencies

B&K 4003 Sweep Function Generator Includes a simple frequency counter



Power Supplies:

Agilent E3640A

Precision supply with computer interface



Elenco XP-760 Triple Power Supply

General purpose supply with \pm DC outputs for analog circuits and 5VDC for digital circui



Logic Probe and Pulser:

Elenco LP-600 Logic Probe



Determine logic state for digital circuits

Substitution Box:

Elenco Resistor Substitution Box RS-500



Elenco LP-700 Logic Pulser



Generate pulses for digital circuits

Elenco Capacitor Substitution Box CS-500



Breadboard: Global Specialties510-PB-60 Protoboard





Wire Size

#22 AWG wire preferred; component leads with diameters .01-.033 inches (.25-.84mm) acceptable, 0.15-.032 inches (.38-.81mm) recommended.

Computer system:

Dell 2350

Intel P4 processor @ 1.8GHz

256 MB RAM

30 GB HDD

CD-RW

15" Flat panel LCD Monitor

Software:

XP Pro operating system Microsoft Office Word Excel



GPIB IEEE-488 interface

Measurement Computing GPIB (PCI-GPIB-300K IEEE-488) card for PCI bus (mounted in computer) allows communication with other instruments (Agilent DMM and PS, Tek scope).

Ref: GPIBhardware.pdf GPIBSoftware.pdf ISA-GPIB-PC2A.pdf



Data Acquisition System:

LabJack U-12 USB data acquisition system

USB data acquisition and control device with 8 12-bit analog inputs, 2 analog outputs, 20 digital I/O, and a 32-bit counter. DB-25 connection for 16 of the digital I/O. All other connections use included screw terminals. Includes everything needed: USB cable, software, and screwdriver. Power is supplied through the USB. Requires a USB port on a PC running Windows 98SE, ME, 2000, or XP.

Can use with LabView

LabJack WWW.lablack.com WWW.lablack.com U12 WWW.lablack.com WWW.lablack.com U12 WWW.lablack.com W

EI-1040 Dual programmable-gain instrumentation amplifier

Dual instrumentation amplifier from Electronic Innovations. Operates from a single 5 volt supply and provides a ± 15 volt supply and a 4.096 volt reference voltage. Analog input range is ± 10 volts. The gain of each channel is set to 1, 10, 100, or 1000 via digital I/O or jumper wires.

Applications include: signal conditioner, thermocouple amplifier, strain gauge amplifier, data acquisition applications, signal filter, audio amplifier, microphone amplifier.

BECTRONE COUP

EI-1022 Temperature probe

Range: -40°C to 100°C (-40°F to 212°F) **Output to LabJack or Meter:** 10 mV per °C **Resolution:** 0.1°C on the 4V range **Accuracy uncalibrated:** +/- 3 °C at 25 °C, typical +/- 1 °C **Accuracy calibrated:** +/- 1 °C, typical +/- 0.5 °C **Sensor device in probe:** LM335A



AVAILABLE IN THE LAB

Elenco Universal Frequency Counter F-1300 Also measures period



Agilent 33120A Function/Arbitrary Waveform Generator. All sorts of programmable and fixed functions up to 15MHz. Even generates white noise.



Analog Oscilloscope: Elenco delayed 40MHz scope S-1345



Elenco LCR-1810 RLC meter

Determine impedance of resistive, inductive and capacitive components.



EDAS-1031-1-SK1 Ethernet Data Acquisition System

Addressable from you Dell computer here or from home.

