Features

- Calibrated luminance and color
- Max resolution of 1600*1200
- Variable Frame Rate
- 8 bit Color control
- 8 bit to 12 bit luminance control (FSG)
- Pattern Generator supports any monitor (FSG)
- Fully programmable with onboard processor and memory (FSG)
- 22" super bright CRT color monitor included
- Luminance > 100 cd/m² (depending on monitor)
- ISCEV Standard Tests Included

PSG – Pattern Stimulus Generator

- Checkerboards, bars, gratings as standard with 5 pixel resolution
- Optional partial checkerboard square removal
- Full field, half field, quarter field patches
- Variable size/color/type fixation spot (center only)
- Full control of reversal rate and onset/offset with frame accuracy
- Adjustable trigger timing
- 8 bit Color/luminance control
- Calibrated luminance and color
- Resolutions fixed at 800*600
- Frame rates 92/100Hz
- No framestore memory, all patterns created in real time
- External box fitted for Espion®
FSG – Framestore Stimulus Generator

- Checkerboards, bars, gratings as standard with single pixel resolution
- Optional partial checkerboard square removal
- Full field, half field, quarter field patches, arbitrary patch size/position
- Variable size/color/type fixation spot
- Gratings in any orientation
- Full control of reversal rate and onset/offset with frame accuracy up to half frame rate
- Adjustable trigger timing
- 10 bit Color/luminance control
- Calibrated luminance and color
- Adjustable monitor timing
- Resolution up to 1600*1200
- Programmable Frame rates
- Arbitrary stimulus shapes
- Based on framestore memory
- External accessory for Espion™
- User defined stimuli possible

ISCEV Tests

- Pattern Reversal (VEP)
- Pattern Onset/Offset
- Pattern ERG (PERG)
ColorBurst

Flash Specifications:
- Any color flash (from red, green, and blue LEDs)
- Flash duration shorter than 4ms
- Proprietary CIE compensation yields ultra-stable luminance and color output
- Max white flash > 40cd.s/m², 10x ISCEV standard flash
- Flash duration adjustable from 1ms to minutes
- On/Off flashes and waveforms including ramp, sine, exponential, arbitrary wavetable

Background Specifications:
- Any color background
  (from red, green and blue LEDs)
- Low Dim, and Bright LED sets produce 6 order-of-magnitude luminance range
- Luminance linearity
  <5% deviation over entire range
- Calibrated luminance output in cd/m²
- 3 Red fixation LEDs with adjustable intensity
- Calibrated in Scotopic and Photopic luminance ranges
- Colors selectable using standard CIE coordinates or color picker
- Color wavelengths typically
  Red 640nm, Green 530nm, Blue 470nm.
- Dual Colorburst configuration capability allows simultaneous, independent control of two Color Bursts

Is your ERG system as bright as you are?
Features:
- Buttons on Handle control testing
- Auto Calibration
- User programmable arbitrary waveforms with 1ms resolution provide full control of luminance and color

Dimensions:
- Sphere: 3.5” (90mm) Diameter
- Viewport Size: 2.15” (55mm) Diameter
- Total Height: 10.5” (270mm)
- Weight: 1.5 lbs (0.6kg)

ISCEV Tests:
- Maximal Combined Response
- Oscillatory Potentials
- Single Flash Rod Response
- Single Flash Cone Response
- 30Hz Flicker Response
- Off Response
- Heterochromatic Flicker
- Flash VEP
- Photopic negative response
- C-wave
- S-cone model available

Accessories:
- Single Colorburst Table Stand and Mount
- Dual Colorburst Controller
- Dual Colorburst Table Stand and Mount
- Floor Stand w/Casters (ideal for recumbent patients)
Flash Specifications:

LED Flash Specifications
- Any color flash (from red, green, blue and amber LEDs)
- LED sets produce 9 order-of-magnitude luminance using 3 LED ranges
- Flash duration 4ms or less using 16ns PWM control
- Proprietary CIE compensation yields ultra-stable luminance and color output
- Maximum white flash > 25cd.s/m², 10x ISCEV standard flash
- On/Off flashes, waveforms including ramp, sine and exponential, arbitrary wavetable
- Calibrated in photopic and scotopic units and Trolands
- User defined color/luminance stimuli

Xenon Flash Specifications:
- Xenon flash calibrated from 0.009cd.s/m² to 3000cd.s/m²
- Flash duration 5us to 2ms automatically adjusted
- Auto calibration system monitors each flash and adjusts flash duration in real-time to produce accurate output
- Integral filter holder for adding customer filters if required
- Max white flash > 3000 cd.s/m², 1000x ISCEV standard flash
- Calibrated in photopic and scotopic units and Trolands
- Capable of double flashes including “double bright flash” protocol
- User defined Flash Sequence

Background Specifications:
- Any color background (from red, green, blue and amber LEDs)
- Low dim, dim, and Bright LED sets produce 6 order-of-magnitude luminance range
- Calibrated luminance output in cd/m²
- Calibrated in Scotopic and Photopic units
- Colors selectable using standard CIE coordinates or color picker
- Dual ColorDome capability allows simultaneous, independent control of two ColorDomes.
**EOG Specifications**
- 9 red EOG LEDs spanning 60 degrees as well as the standard 30 degrees
- Adjustable intensity
- Can be cycled in square wave mode (end LEDs light alternately) or sinusoidal mode (LEDs change from end to end in sinusoidal manner)
- Can be configured to have audible beep at the start of every cycle and the start of every sweep
- Adjustable cycle time
- Backgrounds up to 500cd/m² white for non-dilated pupils

**Other Specifications**
- Infrared camera with IR LEDs built in, with USB interface and video monitor output.
- Button box interface for dark adaptometry responses
- Built-in progressive audible buzzer to warn patients to get ready for next flash
- User programmable arbitrary LED waveforms with 1ms resolution give full control of luminance and color including Xenon flash
- Dark Adaptometry hardware built in (Software not yet available)
- Auto calibration of LED and xenon output

**Dimensions:**
- Dimensions (HxWxD): 260 x 360 x 310 mm
- Weight: 10 lbs (4.3kg) without Stand

**Features:**
- Self-Calibrating
- Full Electronic Color control
- Flash or Flicker stimuli in any color and duration
- Any color background
- 9 Fixation/EOG LEDs with adjustable intensity that span up to ±30 degrees horizontally
- Twin ColorDome Capability
- Fully Adjustable Desktop or Floor Stand

**Accessories:**
- Dual ColorDome Controller
- Fully Adjustable Floor Stand
- Fully Adjustable Table Stand
- Fully Adjustable Quick Release Ball Mount (included with Stand choice)

**ISCEV Standard Tests**
- Maximal Combined Response
- Oscillatory Potentials
- Single Flash Rod Response
- Single Flash Cone Response
- 30 Hz Flicker Response
- On/Off Response
- Flash VEP
- EOG
- P300/Photopic negative/S-cone response/C-Wave
Espion E² Electroretinography System

The Espion E² is a full featured, modular, electrophysiology system capable of generating visual stimuli for any stimulator. Together with Diagnosys’ industry-leading stimulators, it is capable of driving not only all ISCEV standard ERG tests, but any visual electrophysiology tests, even those previously possible only with custom lab-built equipment.

Design Features

- Sleek, modern design
- Hardened, machined Aluminum case
- Multiple PC configurations including: Panel PC, Laptop, Rugged Laptop, Tablet and Desktop PC

Features

- Advanced real-time DSP based acquisition system with integrated power isolation
- 5 integral computer controlled fully isolated differential amplifiers with all digital low, high and band pass filters, DC input, (not AC coupled) and impedance measurement system
- 2 TTL compatible isolated trigger input and output BNCs
- Power on and status indicator LEDs
- USB communication
- Direct pattern generator connection
- Isolated auxiliary line outlets

Espion Software

- Includes ISCEV standard test protocols and the ability to create new protocols for custom testing
- Specialized animal testing protocols available
- Industry standard SQL database using an advanced interface for comprehensive data storage and retrieval
- SQL based Patient Management System
- Microsoft Office™ integration for intuitive, drag and drop report generation
Espion E² Electroretinography Console

Power Isolation
The Espion E² incorporates transformers required to isolate ancillary equipment such as a monitor or printer so they will meet medical leakage current standards.

Data Acquisition
The data acquisition system is based around a fast DSP microprocessor that controls all the acquisition, amplifiers, stimulators and timing independently from the PC. The system is comprised of 5 differential DC coupled amplifiers (prevent AC amplifier lockup) with the following specification:
- Fully isolated
- Input range +/- 1.5V
- Automated internal calibration
- Integral anti-alias filter
- Effective 24 bit resolution (100nV)
- Differential channel input balance better than 1%
- Ultra low noise <1uV RMS
- Input impedance greater than 10⁶ ohms
- CMRR greater than 10⁶dB at 50/60Hz
- 10kHz internal sample frequency decimated down to 5, 2, or 1kHz sample rates
- Automatic impedance measurement per input, not just channel
- Filtering is performed digitally

Panel PC Option
- Pentium P4 2.4GHz CPU running Windows XP with 512MB RAM, 80GB HD, DVD w/CD-RW
- Integrated bright 15” TFT LCD screen with resistive touch screen running at 1024x768
- 2 10/100 BaseT Ethernet ports
- 4 USB Ports
- USB optical mouse and keyboard included

Rugged Laptop Option
- Panasonic Rugged Toughbook 29 w/Centrino Processor at 1.3GHz
- 60GB HDD, 512MB RAM
- Combo Drive DVD-ROM/CD-RW
- 13.3” 1024x768 Anti-Reflective TFT Resistive Touchscreen
- Integrated 10/100 BaseT Ethernet and 802.11b
- 2x USB 2.0 slots
Standalone Stimulator Controller

The Standalone Stimulator Controller is designed to allow third-party systems to be able to integrate and control Diagnosys Stimulators. The controller features full color control of the ColorDome, ColorBurst, or Pattern Stimulators, and can send or receive triggers to synchronize with an acquisition system. The unit is intuitively programmable through Windows software or simple ASCII commands.

Specifications:
- Sophisticated Digital Signal Processor (DSP)
- Isolated 3mb/s USB interface controller
- Controls ColorDome, ColorBurst or Pattern Stimulators
- BNC Trigger In, using + or – edge TTL pulse to start Flash (isolated)
- BNC Trigger Out, using TTL or +12V levels synchronized to flash timing (isolated)
- Built-in Isolated Power Transformer

Features:
- Easily Integrated into existing ERG Systems
- Hard Anodized aluminum case
- Standalone Windows Software to create flashes, backgrounds, or patterns, and set up triggers
- Upgradeable Firmware
- Simple to use ASCII based commands to integrate into user programs

Is your ERG system as bright as you are?

colorburst™
pattern
colordome™

Espion™