

Build: V3.23**Filename: Patch23.zip****Release Date: 8th Mar 2004**

New Features

- New global module option called "USB Camera Name" which can be used to specify a USB camera name or an index number 0..9. This is only relevant if you have more than one image device driver loaded.
- Added the application path and filename to the INFO menu displayed when the Info button is pressed for a module from within the Configure System
- Added a copy option for normals
- Added ability on channel rejection to make the maximum voltage the current graphical scaling rather than an absolute value. Thus when the channel graph scaling changes, the rejection range changes to remain the same percent of the new scaling. It also takes into account the trial divide value and therefore the rejection arrows may be plotted at what seems like the wrong positions for a trial divide of 1
- Protocols now include an extra option to show the USB camera image when the protocol is run automatically
- Ability to change the eye labels "OS, OD and Both" to something else
- Ability to talk to the hardware under Windows XP/NT with a direct IO driver. You must first install DIRECTIO driver from www.direct-io.com and then set the "Windows XP direct IO" parameter in the HARDWARE section of the Configure System to True
- Ability to print two pages for each printout. The printer menu allows you to select which individual printing options for both pages and these may also be set in the protocol. The program will only print one page if no options are set for page 2
- RMS measurement. Any marker may produce an RMS amplitude measurement by setting the "Amplitude is RMS" in the marker display parameters. The amplitude value displayed in the marker table will be postfixed with the letter R to show it is an RMS calculation. If the marker amplitude is made relative to another marker, then it will calculate the RMS between the two markers otherwise it will be the RMS from the trigger point. The RMS calculation is defined as $\sqrt{\text{sum}(\text{values}*\text{values})/\text{count}}$ where $\sqrt{\text{}}$ =square root
- For VEP tests, the pattern and fixation is now drawn on the screen when each step is loaded but no temporal component. This is only applied when the step is run, and remains during pauses
- Added a link graph button to the EOG analysis button which makes both channels graphs have the same maximum y amplitude (i.e. same Y scaling)

Bugs Fixed

8th Mar 2004

- PSG Peak luminance was incorrectly read from the PSG calibration file
- The way pattern protocols was changed from showing a blank screen before a test is run, displaying the pattern during the test and then removing it again afterwards to always showing the pattern, but only adding the temporal part when running a test i.e. no reversals except when running. This feature was added by patch 23 (8th Jan 2004) but was incorrectly applied to the PSG pattern generator without works correctly with the VSG pattern generator. This has now been corrected.

8th Jan 2004

- Fixed a bug in Windows time conversions which caused adaptation countdowns to unexpectedly add 3600 seconds (1 hour) randomly to the current time
- Fixed a bug in External input trigger on analog triggering. This failed to work correctly before DSP firmware V3.20 as the firmware incorrectly calculated the the voltage swing required to cause a trigger
- When loading calibration files, the Espion program now looks for either sections called [COLORBURSTHARDWARE] or [COLORBURST1HARDWARE] as some older programs produced parameters in the second form
- Fixed a problem in the auto zero routine which overflowed the sum value if auto zeroing long arrays
- Trigger Polarity parameter from the VSGPATTERN module had somehow been removed causing the pattern generator trigger polarity to be inverted and speeding up VEP responses
- When all channels button is pressed (from the scaling and Amp menu in the main graphical display) the "Positive is Up" option for all graphs and "Trial divide" values were automatically set to the current channel's values. Now they are only set for all channels when the "Positive is Up" and "Trial Divide" buttons are pressed explicitly.
- The Dim button default can now be set from the Configure System menu for each TESTMETHOD using the new parameter "Display Dim Enable"
- Removed the glitch between changing patterns that blanked the screen before showing the new pattern when changing steps during a VEP protocol
- When a VEP protocols finishes, the monitor screen now remains at the background rather than being blanked
- Fixed the long running problem with AC coupling filters under 10Hz. They basically behaved as if they were not enabled
- Changed the "Channel Axis Scale" maximum from 9999uV to 100mV
- Fixed a problem in ColorDome/ColorBurst such when adding a dim flash to a bright background, the dim flash must be promoted to the bright ring. The problem arose because the software required the bright flash to have all colors increase by at least a count of 10 to be valid
- Fixed a problem in ColorDome mode when using user defined files such that if the pulse mode flash color was "xenon" it would reset the number of flash cycles back to single regardless of what was currently set, even if the flash mode was "User Defined" not "Pulse"
- Fixed a problem in displaying user defined parameters in the protocol stimulus table (before entering the parameter menu) such that user defined variables where

- not labeled correctly. This was because the program did not read the user defined file before displaying the variable names
- Change the behaviors of the pattern generator such that when a VEP protocol is loaded, instead of having a blank pattern generator screen until the run button is pressed, the stimulus is automatically statically displayed for the current step (and for every step when selected) but no temporal motion until the run button is pressed. This allows the patient to see the stimulus and fixation point before actually starting a test
 - Fixed the problem of printing EOGs before displaying the analysis menu such that they did not print correctly until after the analysis window had been shown
 - Baseline removal, is now calculated from two sets of points; one at the beginning of the result, and one at the end. The beginning set of points is taken as starting at point 0 in the result and including for RANGE-1 points and the end set of points is started at (total number of points-RANGE-1) up to the end. The line is calculated from these two sets of points and then subtracted from all points in the result. This ignores the ERG trace in the middle, which skews the whole line. You can still set a range of 0 to use all the points for calculation (as well as auto zero) or turn it off completely

Build: V3.21	Filename: Patch21.zip / Partial21.zip	Release Date: 28th Sep 2003
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New Features

- Moved the results "All Channels" button from the second page of the "result and trials" menu onto the first page next to the "visible" button and made it on by default
- Added an extra parameter "Display Average Result Color" in the TESTMETHOD modules which specifies the color of the result when averaging many results rather than just using the "Display New Result Color"
- Added print "Thick traces" to the print options stored in the protocol
- Added a new print "Black & White" option which prints all traces in black regardless of their original color. This can also be set in the protocol
- Removed the built-in calibration option from the ColorDome and ColorBurst hardware modules. These are being replaced by a separate program called ColorCal.exe
- "Finish and Shutdown" option now allows exiting to Windows as well as shutting down the Espion
- Added sine reversal to EOG LEDs
- Added new filters to the filters.ini file:
 - 0-500Hz (1kHz sampling)
 - 0-500Hz (2kHz sampling)
 - 0-500Hz (5kHz sampling)
 - 0-1000Hz (2kHz sampling)
 - 0-1000Hz (5kHz sampling)
 - 0-2000Hz (5kHz sampling)
 - 0.25-0.75Hz (1kHz sampling, but used for 100Hz) for EOGs

- Added extra buttons on the USB camera window to allow the user to change the exposure parameters and close the menu
- Added the ability to enter SQL statements directly into the patient category box:

Category

Just type the category e.g. TEST1

Date

Just type a date: 30/04/03

Range of Dates

Type two dates separated by a space

e.g. 30/01/02 30/01/03 (note space between the dates)

SQL statement (new for this patch)

All SQL statements must start with the prefix "SQL:" (without the quotes)

SQL:statement

Now here are some examples

1. All patients whose family name begins with the letter 'B'

SQL:FAMILY_NAME LIKE 'B%' (note: single quotes around the B%)

The % character means 1 or more characters after the B

2. All patients whose family name starts with A or B

SQL:FAMILY_NAME BETWEEN 'A' and 'BZ'

If you don't put the Z etc, then it will only find patients whose names begin with A or consist of the letter B only. It does a less than or equal to match for the second bit

SQL:FAMILY_NAME BETWEEN 'A' and 'B' (would find family names beginning with A, but NOT B unless their name was only 'B')

Obviously, now you can enter sql statements directly, we can do a whole lot more. To break it into two databases e.g.

SQL:FAMILY_NAME BETWEEN 'A' AND 'MZ'

SQL:FAMILY_NAME BETWEEN 'N' AND 'ZZ'

- Removed the stop flash call just before downloading a user defined stimulus file to stop turning off the current settings as requested by Ken Alexander

- Increased number of steps to 36 from 16
- Added new script flag 131072, which restricts all luminance foreground/background conversions to be in the bright ring only
- Added an extra acquisition parameter called Trigger Delay. This can be set in increments of 0.1ms and delays the trigger relative to the stimulus. Very useful for user defined scripts where the trigger is produced at the start of the block not the center.
- Auto zero now happens after baseline removal
- ESLOCAL.INI and ESGLOBAL.INI are now backed up to ESLOCAL.BAK and ESGLOBAL.BAK before modification
- "Bright only" parameter on the ColorBurst/ColorDome menu now controls pulse stimulus ring, pulse background ring and user defined background ring.
- Added the ability to perform 4 channel EOG tests where 2 channels are OS and OD inputs, and two channels are virtual showing the raw unfiltered data.

Bugs Fixed

- Added check for divide by zero in User defined file parser for manual RGB entry mode with added background or cd/m² specified intensities
- Fixed bug in adding background to manual entry RGB mode if background was not in the same LED ring as foreground and luminance entry was in range 0..1
- "Display New Result Color" only allowed 7-character entry. Increased this to the standard 8
- ColorBurst buttons did not start test or stop/clear last result as they didn't work at all
- Fixed a bug in scotopic amber calculations
- EOG export now exports the analysis graphs and values, not the individual runs and marker tables
- Fixed bug in monitoring ADC line in DSP code, so it has more noise immunity
- Changed baseline removal to create the slope of the line from the points between the start and range values of the auto zero instead of from the whole trace. The line is still subtracted from the whole trace
- Fixed the xenon system such that if the intensity is outside the time feedback range then it doesn't flash at all. Before if it was lower than the minimum time, it still attempted a flash
- Changed max LED pulse duration from 1000ms to 10000ms in ESPION.INI file
- Fixed bug in color picker for all stimulators which caused crashes when selecting RGB space
- Fixed a bug in the stimulus parameters print out (both on the protocol parameters tree and the actual print out) such that ColorBurst/ColorDome pulse intensity was always displayed in cd.s/m² rather than cd/m² if the pulse period was greater than 4ms
- Debug output for user script files did not correctly print the dim parameter although the flags parameter reflected the correct ring
- EOG export now exports the analysis graphs and Arden ratio data, rather than the raw data and raw marker table
- Fixed a bug in the user defined file parser which produced errors if floating point values passed to it started with a decimal point i.e. (.5) rather than (0.5)
- Removed the new VSG firmware program (GSPCORE.OUT), which includes extra timing for plasma screens and replaced it with the original. To increase

- timing delays for plasma screens, use the new acquisition delay parameter instead of altering the VSG trigger timing
- Although you can change the patient field names on the New/Modify patient menu (where you enter a patient's details), this does not affect the labels displayed in the list of patient's menu. This has now been corrected
 - The IIR filter low values did not change when either 2kHz or 5kHz sample frequencies were selected. Thus a filter selected from the high pass values of 0.03,0.15,0.312,0.625,1.25,2.5,5,10 would be correct for 1kHz sampling, but wrong by a factor of 2 for 2kHz, and 5 for 5kHz sampling. 2 kHz sampling should be 0.15,0.312,0.625,1.25,2.5,5,10 and 5kHz should be 0.312,0.625,1.25,2.5,5,10. This last one is slightly incorrect as the factor is 4, not 5, but we wanted to keep the same values to make it easier to swap between sample rates and be able to compare results
 - EOG tests now store the EOG angle at the time of the test, rather than use the current angle
 - Graphics no longer show the amplifier rejection range arrows in the Y axis if the display mode is in separate mode

Build: V3.20	Filename: Patch20.zip	Release Date: 17th June 2003
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New Features

- Changed ColorDome Buzzer firmware to add support for low/high volume. This is now available from the EOG LED stimulus menu.
- Added a splash screen to GANZTEST.EXE program to show it was loading correctly
- Changed the default intensity of the EOG LEDs from 127 to 255
- Added a 5V compensation option to compensate for any drops in power 5V supply voltage. This often shows itself by failing to detect a plugged in stimulator. Remove all plugged in stimulators, select "Hardware" module under "Configure System - Hardware". press Info button and record the 5V reading. Then modify the hardware parameter "IO Card Voltage Reading" with this value
- Added new flag to protocols that allows you to hide them. A hidden protocol will not appear in the protocol list unless the show hidden radio filter button is pressed on the protocol menu but its test results will appear in the test results menu if results are selected for all protocols
- Modified the GSPCORE.OUT program (pattern stimulator program) to allow longer than half frame trigger delays (ie. trigger delay +49%) to compensate for plasma screens which have at least one frame delay from signal to picture. Now allows up to 5 frames delay
- New filter option for patients. The category filter has been changed to a category/date filter. If a valid date is entered in the form dd/mm/yyyy for systems set to UK input, or mm-dd-yyyy for systems set to US input then all patients with tests recorded on that date will be displayed. To set the input mode, goto "Configure System",select "PROGRAM", then "GLOBAL" and then set the "Country Type" parameter. Years can be entered in 2 digit or 4 digit form. Otherwise dates must be entered exactly as shown. You can also see a range of dates (both dates inclusive) by typing two dates in with a space separating them e.g 04-30-2002 04-30-2003 will show all the patients for a year. The program also understands the words TODAY and YESTERDAY and will convert them into

- valid dates. Thus typing in TODAY will show all patients tested today. To see all patients tested yesterday and today type YESTERDAY TODAY. If the category text is not a valid date or date range (two dates separated by a space character), then it is assumed to be a category
- Added arrows to the Step forward and Step backward buttons when disabled during a test
 - A new option to bring up the touch keyboard rather than holding your finger on the edit control for two seconds. All edits that allow direct user input as well as selection from a list now display a keyboard as the last icon of the list. Select this icon and the touch edit keyboard will automatically be displayed
 - All result and trials data values are now exported in nanovolts (nV) not microvolts (uV). This gives the highest precision to the data
 - Improved the user defined script file parser such that you can now add background to RGB manual entry mode (RED\$, GREEN\$, BLUE\$ and AMBER\$) although any manually set LED ring may be changed if adding the background causes the ring to overflow
 - Added the ability to enter values in user defined script files RGB manual mode as cd/m2 rather than values between 0-1. This uses a new FLAGS\$ value of 65536 to specify this mode. The LED ring will be chosen automatically by the program and will override any attempt to manually set it.
 - Updated the user defined script document to reflect the changes

Bugs Fixed

- Fixed a problem in loading EOG tests, such that the first time the analysis button was pressed, the results were not displayed correctly
- Fixed a bug in ColorBurst/ColorDome such that when flash was added to background, and flash and background were in different LED rings, they were both promoted to the same ring so they could be added together for flash but if the background was promoted it remained promoted even when the flash was not flashing
- Fixed a bug in Xenon flashing such that if Low CAP and High CAP of high tube do not overlap ranges, then time was not necessarily selected (for the bright tube) in the dead space between ranges (depending on flash frequency. It worked for flashes less than 2Hz
- Fixed a bug in starting a new EOG test after finishing an old one (not changing protocols, just pressing the run button again). Under some conditions the program would crash while the original EOG test was being loaded.
- Fixed a bug in the EOG stimulus such that the LED intensity was not being set correctly
- ColorDome Amber scotopic values were not correctly calculated nor were the photopic/scotopic conversion values or power requirements
- Fixed a bug that stopped user defined files being over 400 blocks long and not working unless in continuous cycle mode
- Fixed a bug which stopped the normal amplitude lines when plotting normals being positioned at absolute positions rather than relative to the marker
- Fixed a problem with setting fixation LEDs. All three were always on
- Fixed a problem with not finding user defined files if their path contained a ':' character e.g. "D:\SINEG.COL" when running a protocol
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New Features

- Added new "Warning Sounds" feature to step parameters which allow (ColorDome) sounds to be played in the run up to the start of a result and/or the start of a trial provided the result delay (Doesn't happen first result) and the first trial/inter trial delay are long enough
- Markers have new option to display their amplitude as absolute values (no negative sign)
- Enhanced the EOG protocol
- Changed the ColorDome/ColorBurst calibration routine to be simpler without the myriad of parameters
- External trigger output module can now be selected for the VEP Test for FLASH VEPs using an external stimulator
- Changed the order of patient details to: Family name, first name, initial from First name, initial, Family name. This is true for the database module parameters: Subject print fields, Subject field codes and Subject field names orders as well
- EOG graphs can now include 0 value on the Y axis or revert to auto scaling
- Changed the EOG auto scaling to have 10% extra top and bottom to stop points being plotted at edge
- Turning off marker in EOG protocols removes it automatically from the running average
- Fixed the EOG standard deviation display
- No longer plot removed points from EOG graphs
- Added a go to last step button (as well as a go to next step button) on the control button panel on the graphical window at the bottom
- EOG protocols can now have 2 or 3 steps (at least 2 required). If protocol has two steps, first step is dark phase, second is light phase.
if protocol has three steps, first step is a test step, second step is dark phase, and third is light phase
- Decreased the size of the square marker shape in normal graphical displays
- if step sequencer is set to auto, program no longer automatically changes to the next step when stop is pressed, so the last step run is no displayed rather than the first.
- If step sequencer is set to auto and the current step is not the first, then the program will ask if you want to start the sequence from the first step rather than always starting from the current step
- EXTERNAL TRIGGER OUTPUT Stimulator module can now be used with EOG Tests

Bugs Fixed

- Fixed bug in Export which forgot to subtract the DC offset from results and trial data
- When displaying crosshairs on the screen the crosshair was always slightly to the left of the mouse cursor such that the mouse cursor never actually touched the crosshair cross.

- When starting a protocol with a test countdown timer set, if the preview button was pressed and then the Stop button was pressed, the countdown timer was aborted.
- If the software was installed on a client PC with no hardware, the software still tried to find the calibration files for the ColorDome and ColorBurst.
- Fixed a bug in reading ESLOCAL.INI files from V2 software which stopped the ColorBurst calibration values being recognized.

Build: V3.18	Filename: Patch18.zip	Release Date: 11th April 2003
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New Features

- None

Bugs Fixed

- Fixed bug in V3.11 and below which stopped protocols switching between empty steps when running a test
- Corrected first trial delay timing errors
- Modified various ColorDome internal parameters
- User defined file Xenon\$ parameter is now entered in cd.s/m² rather cd/m²

Build: V3.11	Filename: Partial_v3_11.zip	Release Date: 12th jan 2003
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New Features

- When an old test is loaded, the program will delete all empty steps
- Sample frequencies of 2kHz, and 5kHz added

Bugs Fixed

- Fixed bug in the export data function which incorrectly exported the marker table and result summary table
- Improved trigger timing

Build: V3.10	Filename: N/A	Release Date: 21nd nov 2002
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New Features

- GANZTEST now specifies stimulators not hardware in the roll-call of attached bits and pieces
- Demo button on the ColorBurst stimulus menu turns in to a stop button when the apply button is pressed and then if pressed
- turns back into a demo button until the apply button is pressed again
- ColorBurst stimulator module now displays the color matrix location below the stimulator calibration factors. This is one 'Def' defaults, 'Ini', from the ESLOCAL.INI file and 'Cal' from a calibration file
- System now supports ".CAL" files as well as calibration parameters read from the ESLOCAL.INI file. Calibration files in form 'XXXXabc.CAL' where XXXX is

COLB for ColorBurst, COLD for ColorDome, PSG for PSG and MAC for Maculoscope. abc=serial number of stimulator

- Support for relay box with extra protocol test parameter. Relay can be manually switched from the test menu in the run-time window. Relay is switched to pattern when test runs, then when pause is pressed switched to video, and back to pattern when continue is pressed.

Bugs Fixed

- Dual ColorBurst power calculations now assume 4 Amps in total (2 per channel) not 2A for both ColorBursts
- ColorBurst calibration files no longer include PSG calibration parameters
- Added an impedanceoff() command at DSP startup to reset the digital input on the ISO5 so that it correctly detects the montage connected
- Fixed a bug in the serial port class which caused windows GPFs when the program was closed e.g. when the HCB, or HCT, or IL1700 were enabled
- When recording is continued after a pause, i.e. the run button is pressed after the pause button has been pressed, the program will now insert a first trial delay whereas it did had no delays
- If a protocol has a test delay time and a first step delay time, then when the protocol is loaded, the program selects the greater of the two delay times for delay time used when the run button is pressed. If no test delay time is specified, but a first step delay time is, then the program now sets this delay time automatically when the protocol is first loaded instead of ignoring the first step delay first time
- The stimulate between results option did not work with the pattern generators. Now if this option is disabled, the screen is blanked between result collection

Build: V3.9	Filename: Patchv3_9.zip	Release Date: 31 Oct 2002
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New Features

- Support for dual DTLS with single channel recording
- Added subject record number to subject information displayed on the list of subjects in database

Bugs Fixed

- Fix a bug in ColorBurst calibration