

Product Feature Summary

Black Opal Flat Panel Displays



“The toughest most advanced flat panel displays on the planet.”

Backlight

Black Opal displays offer an unparalleled range of readability, with day and night backlighting.

Day (white) backlight:

This mode is adjustable across a range that allows readability up to and including full direct sunlight (10^5 lux).

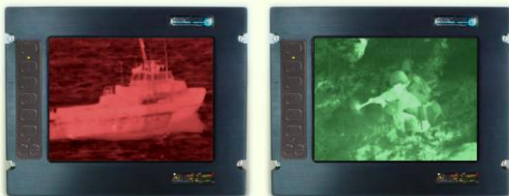


Day Mode

Night backlight:

This mode is adjustable from black-out to just under the day mode threshold – night mode backlight is available in either:

- red - for covert night operations (to suit the dark-adapted eye, yet difficult to detect from distance); or
- green - with chromaticity and luminance levels compatible with the use of NVGs.



Night Modes

MultiVision Screen Lay-outs

Lay-outs are the on-screen side of the Black Opal MultiVision feature, allowing selection from up to 5 or more different screen layouts, where simultaneous display of up to 2 video and one "PC" [analogue RGB] inputs may be configured in each layout. Only a few examples are shown here.



single video channel

video channel inset as Picture-in-Picture [PiP] in another video channel



two video channels as PiPs in a "PC" input

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MultiVision Screen Lay-outs (cont'd)

Other configurations include:
 a single video channel as PiPs in a "PC" input;
 two video channels side by side as a vertical split.
 Customised lay-outs may also be configured.

Once invoked, and where there is a video-in-video layout, the "-" and "+" buttons will swap the main video for the inset video.

The other side [the input side] of the *MultiVision* feature allows for connection of up to 4 video and up to 2 "PC" inputs, from which the on-screen layouts are constructed.

Enhance Image

With the image enhancement function invoked, the system compensates for obscurants in the image [smoke, rain, fog, snow, smog, dust, etc.]. It works by determining and subtracting the common image components associated with these phenomena, and then boosting contrast & colour [if colour imagery] of the components that remain. The function is applied to each and every frame with a maximum latency of one frame period.

Once invoked, the "-" and "+" buttons will cycle through three enhancement window sizes.



rain

rain enhanced



Enhance Image (cont'd)



smog

smog enhanced



snow

snow enhanced



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Enhance Image (cont'd)



smoke



smoke enhanced

The result of the enhancement will be different for different window sizes, because the sample space is different in each case. In general, a smaller window [given that it is more likely to exclude large areas of luminance and/or chrominance extremes] will yield a more dramatic result than a larger window. Thus a larger window is usually more useful to search for objects or activities of interest, and a smaller window for determining maximum possible detail.

Zoom Image

With the digital zoom function invoked, the system provides 16 zoom levels, fully interpolated in both X and Y.

The function applies to video inputs and is applied to each and every frame in real time. The available zoom levels are:

- for NTSC inputs - 16 levels from 1X to 16X; and
- for PAL inputs - 16 levels from 0.7X to 10X.

Once invoked, the "-" and "+" buttons will step up and down through zoom levels [i.e. zoom in and out].

Zoom Image (cont'd)



unzoomed



zoom X 2



zoom X 4

Freeze Image

With the freeze-frame function invoked, the system freezes the current frame. When the function is stopped live video is resumed.



live



frozen

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Colourise Image

With the colourise function invoked, monochrome video images may be shown in:

- TRUE view [their original state];
- INVERTED view [swap black for white]; or
- PSEUDO COLOUR view [colourised].



true



inverted

The pseudo colour view applies a preloaded colour palette to the grey scale of the image. It is intended for use with monochrome images from thermal sensing cameras [although may be applied to any monochrome video image]. 2 different palettes may be resident on the system at any one time.

Ironbow palette:

based on the colour temperature spectrum of iron, it may also be set with a threshold where the palette is only applied above a selected grey level

Rainbow palette:

based on the standard colour spectrum, it may also be set with a threshold where the palette is only applied above a selected grey level.

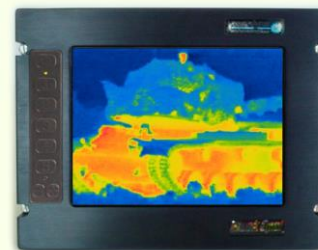
Colourise functions may be invoked via the menu structure, or be preset for specific video channels within individual screen Lay-outs.

Colourise Image (cont'd)



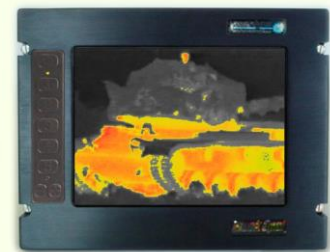
ironbow

*ironbow +
threshold*



rainbow

*rainbow +
threshold*



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Motion Compensation

With this function invoked, the system applies motion compensation (also known as "edge tearing" or "jagged edge" compensation) to whichever video input has been assigned to fill the screen, and minimises the jagged edges that can occur with motion in video on LCDs.



*not
compensated*



compensated

The feature may be manually enabled via the menu structure, or set to auto for individual screen Layouts. In the latter case it is applied whenever the apparent speed of a frame [e.g. when panning] or of an object in a frame [e.g. a vehicle] exceeds a preset threshold.



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