LED Safe-lights

The safe light contains two LED pcbs in parallel. Each pcb has 5 LEDs in series. Regulated plug-pack supplies 12.1 > 12.2 volts therefore each LED pcb is supplied with2.4 volts.

If a 12 volt battery system is used for a mobile darkroom the charging voltage feed to the safelight will be between 13.8 and 14.3 volts which will increase light output and may cause film fogging. The LEDs will still operate within the specified voltage parameters. The gimbal mount will enable the safe-light to be pointed towards the ceiling which will further diffuse the beam.

From the specification sheet below it can be seen that the dominant wavelength is 625 nm and is classified as red/orange. Usually x-ray film is blue/green sensitive. To further filter the light output an orange acrylic screen is utilised which also serves to diffuse the inherent 20 degree beam of the LEDs. If requested, a red acrylic can be installed during manufacture, however, the orange acrylic is serviceable, standard and most radiographers can better judge image and density using orange filtration.

Light output from each LED will be between 4000 and 8000mcd depending on the power source as mentioned above.

Information for the acrylic used for filtration and diffusion can be accessed using the following link http://www.waplastics.com.au/storage/acrylic%20sheet.pdf

No safelight provides completely safe exposure for an indefinite period of time. We suggest, therefore, that an initial installation test is carried out at 1 metre with AGFA D-7 or equivalent for 5 minutes. The fog factor can then be measured by comparison with the inherent film fogging measured with a densitometer.

Standard safe-lights invariably use filament lamps [white light] which are then filtered to produce light of an acceptable colour. By using LEDs the colour is already selected and there is no temperature issue which is usually associated with filament lamps. In addition, the reliability and life of filament lamps is at best random. There is a reasonable expectation of LED life in excess of 50,000 hours.

LED Specification,

Kingbright Part Number: L-7113SEC-H

Dimensions	5 x 8.6mm
Dominant Wavelength	625 nm
Forward Voltage	2.2 V
LED Colours	Orange
LED Material	AlGaInP
Lens Shape	Round
Luminous Intensity	8000 mcd
Mounting Type	Through Hole
Number of LEDs	1
Number of Pins	2
Package Size	5mm
Package Type	5mm (T-1 3/4)
Series	Round
Viewing Angle	20 °

Figure 1 Gimbal camera mount allows safelight to be pointed in required direction or pointed at ceiling for diffusion and even light spread.

Figure 2 2.5 mm plugs and pre-cut cables link safe-lights using one regulated 12 volt plug pack

Figure 3. 12 volt regulated plug-pack. One unit will run maximum of four safelights in series. Pre-cut cables can be provided to order or each safelight can run on a separate plugppack.