HOW TO SPECIFY A BATTERY BACK-UP POWER INVERTER FOR MEDLUX PRODUCTS

Although most MedLux™ products are supplied with DC current within the shield room, they all derive their power from the AC mains. The XLS products are directly AC powered while all other products use an AC fed power supply, usually located in the equipment room. However, determining the proper rating for a back-up power source is not as simple as simply adding up the rating label power figures.

XLS Downlights

The XLS downlight fixtures are rated in Watts and VA. This is necessary because each fixture presents a highly capacitive load to the power source thereby decreasing the power factor to about 0.6. This must be accounted for when determining the power capability of a back-up inverter. For example, the XLS3.0 recessed ceiling light is rated for 25W and 42VA. If the selected inverter is sized at 100W, to power say 4 lights, it will most likely be unable to power the full load. Always use the VA rating to size the power inverter. For this example, the proper rating would have been 4 x 42 = 168W. Note that some products are dual rated, such as: 300/250W. This usually refers to "peak/average" power. In this case you must always use the average rating to determine suitability for the calculated load.

Also, keep in mind that most inverters are designed and rated based on a fairly short hold-up time. This is the amount of time that the battery will support the full load. Often the hold-up time is limited to 5-10 minutes. If you require a longer period of sustained power, you will have to multiply the power rating to obtain a longer duration. For example, if the inverter chosen will support 500W for 10 minutes, then it will only support 500W/6 = 83W for 60 minutes.

Ceiling Mounted and Wall Mounted Graphic Panel Illuminators (cGPIs & wGPIs), High Brightness and Color Changing Troffers (HBTs & CCTs) and Cove products (both White and RGB)

All of these products are powered by DC power supplies. Typically these supplies also present a highly capacitive load to the power mains. In addition, these supplies are not 100% efficient, so the ratings given on the fixtures being driven must be multiplied by an adjustment factor to compensate for these two issues. In order to determine the total back-up power capacity required, first add up the total power required for all fixtures to be backed up. Let's assume 100W. Then, divide this number by 0.85, to compensate for the power supply efficiency. Next,

divide by 0.6 to compensate for the power factor caused by the power supply's capacitive input. For our example, this results in: 100W/0.85 = 117.65, /0.6 = 196W. As you can see, the inverter capacity must be nearly double what the individual fixture ratings add up to in order to function properly.

Dimmers & RGB Controls

Typically, dimmers are not included in the calculations for back-up power because they are usually not powered from the back-up mains. However, all MedLux™ fixtures (except the Cove and Color Changing Troffer products) are designed to default to full ON if the control signal is lost for any reason. Therefore, as long as the fixtures have power applied, they will remain active even if the dimmers are not powered. Of course, if the dimmer power source(s) is(are) backed up, there will be no change in the operation of the systems.It will be necessary to maintain power to the RGB controller or monochrome dimmer used for the Cove products in order to maintain proper functionality.