



Starkstrom 24VDC Operating Light Battery Backup Panel

It is a requirement of HTM06-01 (sec.16.78) that all fixed theatre operating lamps, including the main unit and any satellite units, should be connected to a battery unit providing **three hours of autonomy**. It is a further requirement of HTM06-01 (sec.10) that Tertiary Power Supply Units use BS6290-4:1997 flame retardant 10 year VRLA batteries. Starkstrom battery backup units are compliant with both of these points. One Battery Backup Panel is required per set of operating lights / per operating theatre.

| Configuration | Charger | Battery | Discharge Current | Discharge Time | Enclosure Size | Enclosure Weight |
|---------------|--------------|---------|-------------------|----------------|----------------|------------------|
| 220W | 150W – 5.6A | 38Ah | 9.5A | 3hr | 600sq.x300d | 60Kg |
| 380W | 200W – 7.5A | 65Ah | 16.0A | 3hr | 800sq.x300d | 85Kg |
| 490W | 250W – 9.3A | 78Ah | 20.5A | 3hr | 800sq.x300d | 90Kg |
| 790W | 500W – 18.0A | 130Ah | 33.0A | 3hr | 800sq.x400d | 150Kg |

Charger sized to deliver minimum 10% of battery Ah for optimum charging. Discharge characteristics are based on the standard Yuasa battery discharge curves. Equal or equivalent batteries are used.

Features: The battery backup panel has the following features across all configurations.

| Feature | Range | Factory Set |
|--|---------------|-------------|
| Adjustable Charger Voltage | 25.6-29.7 VDC | 27 VDC |
| Adjustable Charger Failure Alarm | 6-30 VDC | 26.5 VDC |
| Adjustable Battery Low Voltage Disconnect | 6-30 VDC | 20 VDC |

Indication: Each battery backup system has the following visual indication on the enclosure door, or on the TCP fascia if an integrated system is chosen. 24VDC LED Indicators are used (except mains healthy which is 230VAC).

| Indicator | Function | Colour |
|-------------------------------------|---|--------|
| Mains Healthy | Indicates when there is mains power to the panel. | White |
| Battery System General Fault | Indicates when the battery system has one or more of the following faults: Mains / Battery / Charger Failure, Mains to Power Module Failed | Red |
| Load On Battery | Indicates when the load (operating lights) are being supplied from battery power, this is usually due to a mains failure. | Amber |

Volt Free Contacts: Two common alarm V.F. contacts are provided for connection to the building management system (BMS) or Theatre Control Panel (eTCP or sTCP). Contacts are normally closed, open on a fault condition.

| Characteristic | Value | Characteristic | Value | Characteristic | Value |
|----------------------------|-----------------|--------------------------|------------------|---------------------------|---------------|
| Input Range | 85-264 VAC | Overload Prot. | 105 – 135% | Output Tolerance | ±1% |
| Input Inrush | 40A Cold Start | Overload Type | Constant Current | Ripple & Noise | 150-200mV |
| Efficiency | 83-88% | Auto Recovery | Yes | Forced Air Cooled | Yes (>200W) |
| Built In Active PFC | Yes (0.93-0.95) | Overvoltage Prot. | 115 – 135% | Working Temp. | -10°C - +50°C |

Environmental Requirements: Batteries function at their optimum within a narrow temperature window 20-25°C. Below this temperature and the battery's ability to deliver current is reduced. Above this temperature and the battery's lifespan is reduced.

| Temperature | 20°C | 25°C | 30°C | 35°C | 40°C | 45°C |
|-------------------|------|------|------|------|------|------|
| Float Life | 100% | 100% | 80% | 60% | 40% | 20% |

Theatre Control Panel Integration: Battery backup configurations up to 490W can be built into Starkstrom standard sTCP range of Theatre Control Panels. This reduces cost, space and on-site cabling. eTCP integration is possible with the addition of the lower equipment enclosure upgrade.

Operating Light Power Module Integration: When using KLS Martin Operating Lights as supplied by Starkstrom, the battery backup panel can contain the operating light power modules, thus reducing on-site cabling and making future maintenance access easier.