

## EF 20 CBS Range



### CENTRAL BATTERY SYSTEM AC/DC 1.5 – 10 kVA

The Effekta EF 20 CBS is compact, easily maintained and provides optional single or three phase input. Output voltage is 48/110/220 VAC during mains operation, reverting to 48/110/220 VDC during mains failure. In the smaller systems the batteries are within the system enclosure and front access means no need for rear or side space for maintenance or ventilation. Systems are offered with contactor changeover as standard.

Through incorporating these features the Effekta EF 20 CBS range offers dependable emergency lighting systems that save time, money and comply with required industry standards.

### FEATURES

- Output configurable to be maintained, non-maintained or switched
- Deep Discharge Protection for Batteries
- Microprocessor Control
- 4 x Volt Free Contacts for Remote Monitoring or BMS
- Battery Temperature Compensation
- Reverse Battery Polarity Protection
- Modular Design Improving Reliability and Serviceability
- Compact Floor Standing Enclosure
- Data Logger Stores up to 200 Alarms
- Complies with BS EN 50171

### OPTIONAL FEATURES

#### Internal Distribution:

- Additional double pole output circuit breakers can be fitted internally for direct distribution to the luminaires or sub circuits

#### DC Earth Leakage Protection:

- Protects system from leaking batteries, display mA reading and alarm if leakage current is too high

#### Output Earth Leakage Protection:

- Protects downstream circuits from earth leakage, can be set to 30, 100 or 300mA

#### Additional Volt Free Contacts:

- Provides additional 6 volt free contacts for more comprehensive system monitoring

#### Remote Monitoring RS 232/LAN

- The system can be monitored and interrogated remotely by local or networked PC

#### Local Printer:

- Panel mounted or free standing hard copy printer provides print out of battery test

#### High IP Rating:

- Enclosure ratings are available from Standard IP 21 – maximum IP 54

#### Extended Run Times:

- Run times can be extended or reduced to suit specific applications

#### Other Voltages / Frequencies:

- Configuration is flexible to operate at other mains voltages and frequencies e.g. 110/115/120V 60Hz. Three phase input is also available

Powervamp Ltd  
22 Bridgwater Court  
Oldmixon Crescent  
Weston-Super-Mare  
BS24 9AY, England

Tel: +44 (0)1934 643000  
Fax: +44 (0)1934 642800  
Email: [info@powervamp.com](mailto:info@powervamp.com)  
[www.powervamp.com](http://www.powervamp.com)



© Powervamp Ltd. Measurements, weights, technical performance and other specification data are typical and may vary. Powervamp reserves the right to alter or amend specifications without notice as part of its program of continuous improvement. Powervamp is a trademark of Powervamp Ltd.

## TECHNICAL DATA

EF 20 CBS Range	1.5k	2.7k	4.0k	6.0k	7.0k	10k
Output active power (kW)	1.50	2.70	4.00	6.00	7.00	10.00
Apparent output power (kVA)	1.50	2.70	4.00	6.00	7.00	10.00

### INPUT

Number of phases (also available with three phase input 400/415V)	1	1	1	1	1	1
Nominal input voltage (VAC)	230	230	230	230	230	230
Voltage tolerance	+ / - 10%					
Nominal input frequency	50 Hz (+ / - 5%)					
Three phase input available on request						

### OUTPUT

Nominal output voltage	48 / 110 / 220 / VAC/DC (other voltages available on request)					
Nominal output frequency	50 Hz during mains operation / DC during battery operation					
Overload	120% continuous					

### GENERAL

Operating temperature	0 – 40°C					
Relative humidity	90% non-condensing					
Altitude	Max 1000m before derating					
Protection level	IP 23					
Colour	RAL 7035 (other colours available)					
Noise level	< 55 dBA @ 1m (free field conditions)					

### BATTERY

Type	VRLA front terminal					
Life expectancy	10 years @ 20°C					
Ageing factor	included					

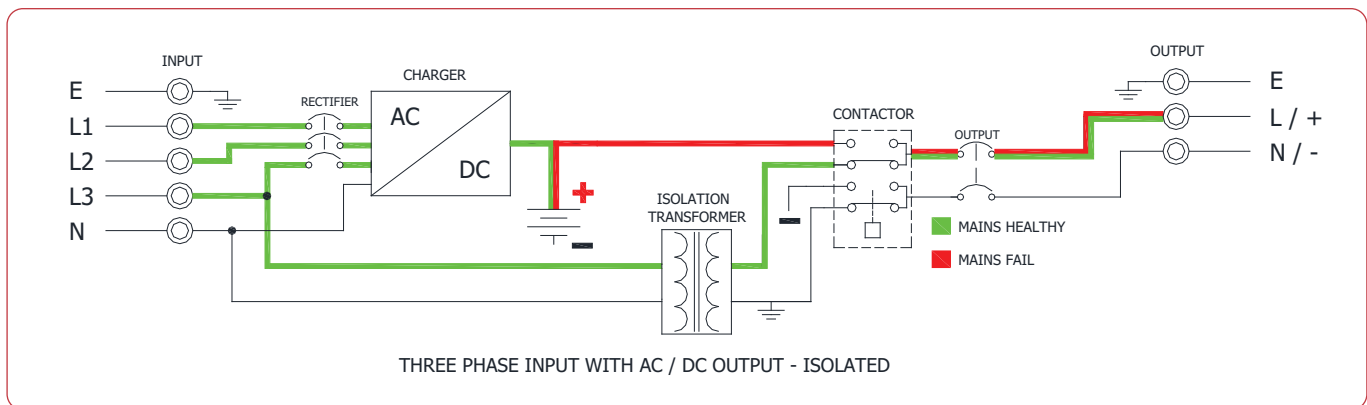
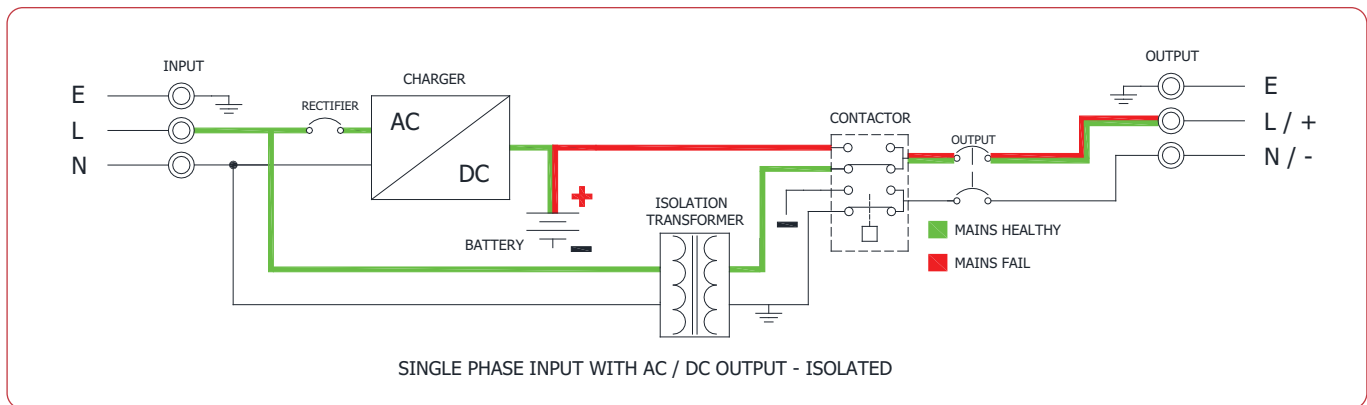
1 HOUR SYSTEMS	1.5K	2.7K	4.0K	6.0K	7.0K	10K
Enclosure (see below for dimensions)	SC	SC	SC	SC	SD	SD
Additional battery enclosure	X	X	X	X	X	X
Weight (Kg)	250	350	490	520	630	800

3 HOUR SYSTEMS	1.5K	2.7K	4.0K	6.0K	7.0K	10K
Enclosure (see below for dimensions)	SC	SC	SD	SD	SD	SD
Additional battery enclosure	X	X	X	X	X	SD
Weight (Kg)	300	500	750	1065	1125	1625

DIMENSIONS	Height (mm)	Width (mm)	Depth (mm)
SC	1715	800	400
SD	1850	830	630

### STANDARDS

Emergency lighting	BS EN 50171
Safety	EN 62040-1
Emissions	EN 61000-6-4
Immunity	EN 61000-6-2
Batteries	BS EN 6290-4



## SYSTEM OPERATION

The EF 20 CBS comprises a battery charger, battery and changeover.

### Mains Healthy:

The battery charger charges the batteries and the load is supplied via the isolation transformer and changeover. For non-maintained applications, the output is normally off and therefore the isolation transformer is not required.

### Mains Failure:

The load is transferred to the battery which will supply the load for the rated duration (usually one or three hours) or until the mains power is restored.

Systems are generally supplied with single phase input. Three phase input is available if required. Three phase input systems utilise one phase from the input to supply any maintained load (via the changeover).

## MONITORING

### Battery Monitoring:

A Manual Test raises an alarm if the battery is discharging faster than predicted by comparing actual discharge current against a typical discharge curve. This critical emergency system feature provides early warning of battery failure.

### Data Logging Digital Display:

Allows access to 200 alarm and 200 battery records for accurate determination of event time line during fault diagnosis.

## PROTECTIONS

### Overload Protection:

During mains healthy conditions overall load is monitored, overload is displayed and the buzzer sounds if the rated load is exceeded for more than 5 seconds. During mains failure, overload is displayed and the buzzer sounds if the preset overload point (>120% of rated load) is exceeded for more than 5 seconds.

### Battery Disconnection Protection:

Battery connection is monitored to ensure continuity and if disconnected the display will indicate battery off and the buzzer will sound.

### Deep Discharge Protection:

During prolonged mains failures, the system will deplete the battery, to protect the battery from further discharge the discharge current is reduced to virtually zero by the system inducing sleep mode.

### Reverse Battery Polarity Protection:

The system is protected from reverse battery connection as required by BS EN 50171.

## FRONT TERMINAL VRLA BATTERY (10 YR LIFE)

EF 20 CBS are supplied with Front Terminal batteries as standard allowing for:

- Compact sizes
- Easy and safe battery maintenance

### Batteries are:

- Sized in accordance with BS EN 50171 allowing the system to supply the full rated output for the required duration after 10 years
- Charged in line with manufacturers recommendations

Automatic Temperature Compensation adjusts the battery voltage in line with ambient temperature. To maximise battery life, the ambient temperature should not exceed 20°C.

Batteries are mechanically segregated from the remainder of the system.

## DIGITAL DISPLAY

### Indicating Lights:

- Mains Failure
- Battery low and under voltage
- System Okay
- Warning
- Fault
- Load on Battery
- Load on Reserve (bypass)
- Charger Fault

### Push Buttons:

- Menu
- Menu Navigation
- Reset
- Inverter On/Off
- Buzzer Mute

### Alarms:

- Mains Failure
- Battery Test in Progress
- Battery Disconnected
- Battery Low
- Battery Fault
- Battery Over Voltage

- Overload
- Short Circuit
- Over Temperature
- Charger Fault
- Fire Alarm Test in Progress
- Power Supply Fault

### Display Type:

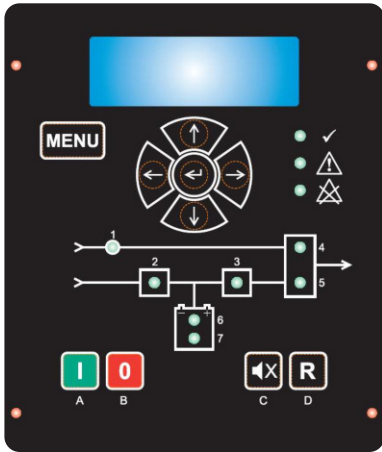
- 4 line x 20 Character LCD

### Metering:

- Mains Voltage & Frequency
- Output Voltage
- Load Current
- Load VA
- Load %
- Battery Voltage
- Battery Discharge Current
- Battery Charge Current

### Other Information:

- Time and Date
- Enclosure Temperature
- Setup Information



## REMOTE MONITORING / CONNECTIONS

### Volt Free Contacts:

Includes 4 volt free contacts for the following alarms:

- System in Battery Mode
- Charger Fault
- Load Alarm
- Common Alarm

Normally open and normally closed contacts are provided for each of the above alarms.

Alarm relays are energised when in healthy condition and relax into the fault condition. This ensures the contacts indicate a fault condition even when the system is off or in sleep mode (no power for extended periods).

### Fire Test Input:

The system simulates mains failure on receiving signals from the fire alarm or BMS via a dedicated set of terminals.

### Sub-Circuit Monitoring:

In the event of sub-circuit mains failure e.g. local distribution board breaker tripped, the system output is turned on by using the fire test input together with single or three phase remote monitoring devices.

### Night-Watchman Switch:

Turns off the maintained output via a single remote switch.

## ENCLOSURE

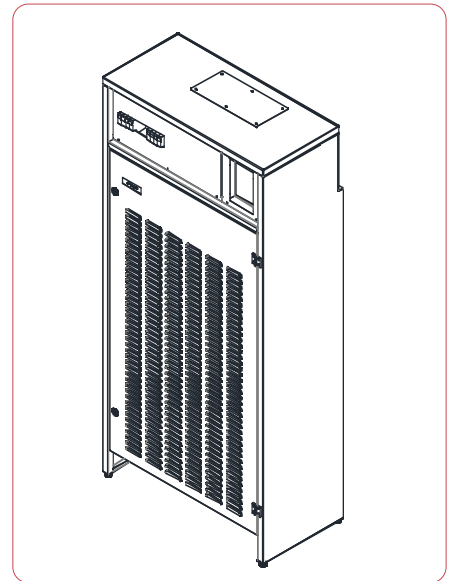
Front terminal batteries minimize space requirements for the EF 20 CBS Range. The front access system requires no side or back room for maintenance or ventilation.

### Enclosure Features:

- Zintec Sheet Steel
- Lockable Door
- Top Cable Entry
- Removable Gland Plate

There are two types of enclosure: SC and SD.

### The SC enclosure



### The SD enclosure

