

EMEX 220 AC/DC

Modular AC/DC central power supply system

The EMEX Power charger modules utilise solid state electronics of the highest reliability to provide a rugged, easy to maintain system with exceptional performance for emergency lighting use.



—
02

System design

The system has been designed solely for emergency lighting, and not modified from other less essential power supply requirements. As such, the system has exceptional overload performance without the need to over-specify the rating to ensure faults can be cleared.

The charger utilises this modular approach, allowing a much higher power density than similar non-modular systems. The number of modules fitted, together with the appropriate sized battery, determines the rating of the system. All modules connect to a common control bus via IDC connectors. Main connections to modules are via five front panel terminals giving quick and easy access to terminations, allowing a module to be changed in a matter of minutes. Each module has two recessed handles to aid lifting. No side or rear access is required.

Alarms and status indicators are provided on the front panel display, which provides clear and concise information.

System performance

EMEX 220 has been designed to operate solely as an emergency lighting power supply, and as such is equipped with the following features:

- Four pole contactor EN60947-4-1 (BS5424 Compliant)
- Modular Charger
- DC Earth leakage alarm
- MCB protection (No fuses)
- 3 main components for simple maintenance

—
03



—
02 EMEX 220 AC/DC
central supply system

—
03 EMEX charger module



Systems Certified to:
BS EN 50171 2021, BS EN 61508
& IEC 62477

EMEX 220 AC/DC

System overview

EMEX 220 offers a host of standard features and benefits, as listed below:

—
*** Note:** that some items will be optional, extra cost items on other systems, or may not be available at all if the system is not designed specifically and solely for emergency lighting use.

Standard features: EMEX 220 system overview
 For further detail, please refer to the ‘EMEX Power detailed specification’.

Performance

- Compatibility with addressable test package using EMEX technology
- Excellent overload capability in full emergency mode without reduction in output voltage
- Excellent recharge capability: 80% after 12 hours following rated discharge
- MCB protection throughout – no fuses
- EMEX true modular construction with common spares (charger, control PCB, and system interface common across the full system range)
- Individual MCB protection for each module - AC and DC circuits
- Individual cooling fans for each module with on-demand operation (not continuously running)
- Split parallel charger above 5 amps – enhanced integrity with the ability to operate with one or more charger modules isolated (subject to increased recharge)
- Integral maintenance bypass facility (ability to support output load in bypass mode whilst maintenance is performed)
- Temperature compensated charger
- Maintained output as standard (switchable to non-maintained)

Alarms and instrumentation

- Comprehensive display
- Charger alarm pack
- Momentary “push to test” button
- Fire alarm interface
- Final exit interlock
- Internal and external MCB monitoring
- Local/remote maintained circuit control
- Sub-circuit monitor connection
- Two sets of volt-free alarm relay contacts
- Inhibit engineers’ switch
- Remote alarm unit option

Mechanical

- IP21 & IP31 Systems as standard, options for IP42 available on request
- Easy front panel access
- Inter-cabinet trunking for battery cables
- Fork-lift plinth
- Lifting eyes for crane lift as standard
- Installation pack with all tools required
- Detailed instruction manual

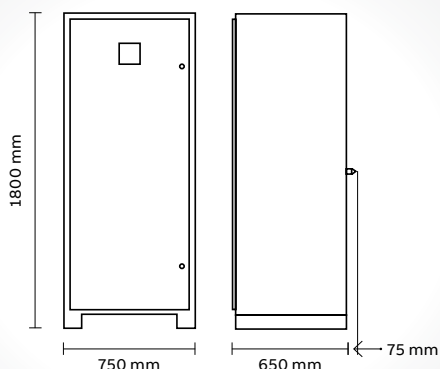
Batteries

Standard systems are supplied with Valve Regulated Lead Acid (VRLA) batteries, also known as ‘Sealed Lead Acid’. These batteries are sealed for their design life of 10 years. Longer design life VRLA and Nickel Cadmium batteries are available upon request, however, these batteries require a much larger physical area, and emit potentially explosive gases, meaning the battery room must be adequately ventilated.

These reasons, along with the additional capital cost, generally outweigh the additional life obtained, as demonstrated below.

—
 01 EMEX power measurements

—
 01



Battery	Initial cost	Design life	Maintenance
VRLA	££	YY	££
Ni-CAD	£££££	YYYYY	£££££
Planté	££££	YYY	££££

Technical reference AC/DC System

Specification & certification

Central power supply & Static specification

LED indications	
Mains healthy	Green
Maintained circuit on	Green
Battery high volts	Amber
Battery low volts	Amber
Supply from battery	Red
Charge fail	Red
System fault	Red
Common alarm	Red
Battery discharged	Red
System inhibited	Red

Charger modules

Constant voltage current limited with temperature compensation. Voltage control to $\pm 1\%$ with full mains supply variations.

Rating	5A (220V) & 10A (110V)
Cooling	Integral fan (on-demand operation)
Protection	AC 2 pole type D DC 2 pole type B
Module dimensions	360mm x 170mm x 575mm
Handling	Recessed handles front and rear
Weight	50kg

Metering

DC metering	Combined digital battery voltage and charge/discharge current
AC metering	Combined digital AC output Voltage and current

Controls

Final exit interlock	Requires volt-free contact
Sub-circuit monitor	24V control loop
Maintained circuit control	24V control loop
Fire alarm control	12/24V DC from fire panel
Remote MCB monitoring	24V control loop
Changeover device	Four pole contactor to BS 5424 and EN 60947
Battery Earth leakage monitor	

Mechanical

Input / output terminals	10mm/50mm dependant on rating
Control terminals	2.5mm

Transient over voltage protection

The charger has a surge protection device of 190J and 10kA peak current (single pulse).



01

01 Emergency lighting system reference

Battery

Battery should be comprised of one or more strings of no more than 120V nominal voltage per battery section/compartment.

The batteries shall be maintenance free sealed lead acid, gas recombination type with a minimum design life of 10 years. They shall have extremely low gas generation, low self-discharge and have sealed pressure release vents. Other battery technologies to be available upon special request.

The batteries shall be sized to power the complete system for the rated duration following mains failure at 100% light output of all emergency lamps.

Environmental conditions

Ambient temperature of the installation (switch room) should be in the range 15 – 25°C. Air conditioning is required where normal ambient will exceed 25°C. This is to achieve optimum battery life expectations.

Indoor equipment categorized	
Ambient temperature (Nominal)	5°C – 35°C
Extreme temperature	0 – 40°C
Humidity (non-condensing)	40 – 85%
Noise level at 1 metre	55 dBA
Altitude without extra ventilation	2000 metres

Cabinets	
Nominal output	220V – 240V 50/60Hz AC
Construction	Modular without welds; battery cubicles can be flat-packed for ease of access to site
Ingress protection	IP21 & IP31 standard, options up to IP41
Colour	RAL 7016 (Anthracite grey) Other RAL colour finishes available to special order
Lifting & handling	M12 lifting eyes and 110mm plinth
Levelling	Levelling feet available
Access	Single door with 8mm square block key. Front access only required - opening angle 180° Key lockable doors on request. Removable top gland plate.
Ventilation	Ventilation in rear and front only – cubicles can be mounted adjacent to each other (no side ventilation)
Dimensions	1800mm x 750mm x 725mm (Dimensions are inclusive of 75mm ventilation back-stop)

EMEX 220 AC/DC

Order codes

EMEX 220 system installed codes:

Part Code Key:

ELD A B C D . E F G H

A	System Type 7 For EMEX 220 Unity PF
B (C)	Duration: 1 for 1hr, 15 for 1.5 hr, 2 for 2 hr and 3 for 3hr
C (D)	Phase - 1 for single and 3 for 3 phase Input only
EFG	KW (multiplied by 0.1)
H	additional suffix below, e.g. TS

Example:

ELD7310.030 = EMEX 220, 3 hr, 1 Phase @ 3 kW

ELD7151.030 = EMEX 220, 1.5 hr, 1 Phase @ 3 kW

Note: X & B suffix code will be used to allow the phasing of battery deliveries and will not show on product documentation or product. The X & B codes will only be used for order processing and logistics and will show on and will show on the Shipping and invoice document.

Suffix Description:

X	Excluding batteries
B	Battery Kit
N	Nicad cells
TS	Touch screen EMEX Test control GUI

Note: adding this Suffix TS the EMEX power central batter system contains the full hardware to communicate and operate the EMEX Test Automatic testing system.

Example:

ELD7310.015NTS

ELD7310.01560TS

ELD7310.015X

ELD7310.015B

The new EMEX order codes have the Machine and Batteries split into two codes, to allow the control to customers during project execution. So to explain the process with this as an example the new codes will be quoted as: Full System Code ELD7110.030 as declared in the following tables this code is the installed machine including the batteries, this is a descriptive code for certification compliance and product identification, etc. ELD7110.030 = Total Price of installed system.

Actual order codes for processing with GID codes are as below:

- ELD7110.030X – Machine
- ELD7110.030B – Battery

EMEX 220 - Single phase 220 AC/DC 220-240 V 50/60 Hz

Watts Commercial rating	Power Rating Watts ICEL (EN50171, 120%)	1 hour duration	1.5 hour duration	2 hour duration	3 hour duration
1000	833	–	ELD7151.010	–	ELD7310.010
2000	1667	–	ELD7151.020	–	ELD7310.020
3000	2500	–	ELD7151.030	–	ELD7310.030
4000	3333	–	ELD7151.040	–	ELD7310.040
5000	4167	–	ELD7151.050	–	ELD7310.050
6000	5000	–	ELD7151.060	–	ELD7310.060
7000	5833	–	ELD7151.070	–	ELD7310.070
8000	6667	–	ELD7151.080	–	ELD7310.080
9000	7500	–	ELD7151.090	–	ELD7310.090
10000	8333	–	ELD7151.100	–	ELD7310.100
11000	9167	–	ELD7151.110	–	ELD7310.110
12000	10000	–	ELD7151.120	–	ELD7310.120
13000	10833	–	ELD7151.130	–	ELD7310.130
14000	11667	–	ELD7151.140	–	ELD7310.140
15000	12500	–	ELD7151.150	–	ELD7310.150
16000	13333	–	ELD7151.160	–	ELD7310.160
17000	14167	–	ELD7151.170	–	ELD7310.170
18000	15000	–	ELD7151.180	–	ELD7310.180
19000	15833	–	ELD7151.190	–	ELD7310.190
20000	16667	–	ELD7151.200	–	ELD7310.200

All EMEX systems Are subject to price on application so to obtain a quotation and the correct part order codes or to order an EMEX Power sytem or for special product requirements please contact your local ABB Emergilite sales office / representative.