OVERVIEW

The following document clarifies BESS (Battery Energy Storage System) spacing requirements for the EG4 WallMount batteries / rack mount six slot battery cabinet installations.

UL 9540 and UL 9540A are the safety requirements approved by ANSI (American National Standards Institute), which is an industry accepted standard for BESS and the fire safety hazards for BESS involving thermal runaway.

The International Fire Code (IFC), International Residential Code (IRC), California Fire Code (CFC), California Residential Code (CRC) and California Electric Commission (CEC) require all Battery Energy Storage Systems to be listed to UL 9540. According to UL 9540 the separation between batteries should be 3ft (91.4 cm). UL 9540 also provides that equipment evaluated and listed as UL9540A with a written report from a nationally recognized testing laboratory (NRTL), such as ETL, can be permitted to be installed with **less than** 3ft of separation distance based on the UL9540A test results.

The EG4 PowerPro series of ESS batteries WallMount, EG4-LL, EG4-LL-S, and LifePower4 passed unit level testing in accordance with UL 9540A performed by ETL. The units were tested using the manufacturer's recommended spacing of 30 cm (12 inches). The 3 ft horizontal spacing requirement between units should therefore be reduced to 30 cm (12 inches), as per UL 9540 and 9540A.

INSTALLATION SPACING REQUIREMENTS

EG4 WallMount

The minimum spacing requirement is 30 cm (12 inches) between multiple EG4 WallMount batteries as shown in Figure 1.

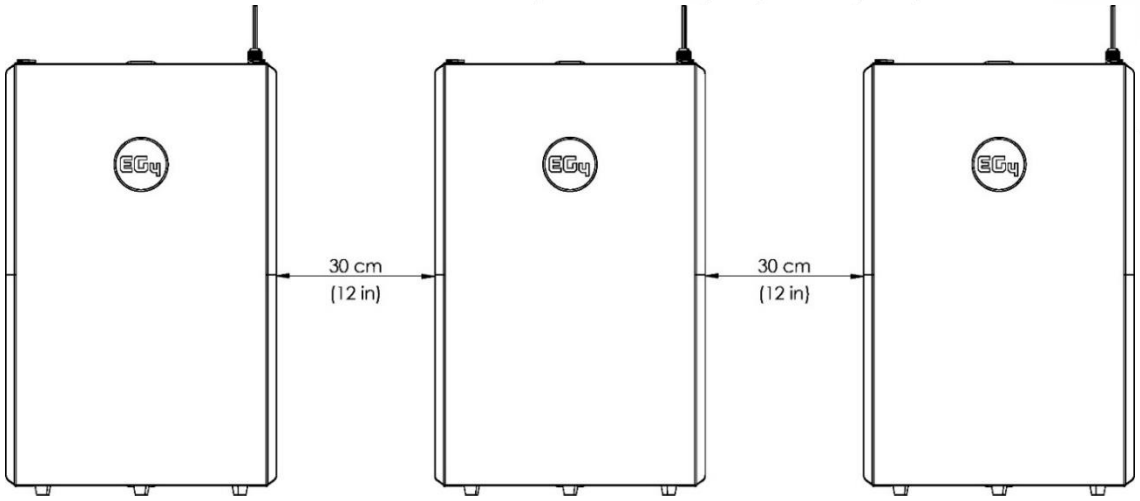

Figure 1 – EG4 WallMount Battery Spacing

EG4-LL, EG4-LL-S and LifePower4

The minimum horizonal spacing requirement is 30 cm (12 inches) between two EG4-LL, EG4-LL-S and/or LifePower4 battery cabinet pairs as shown in Figure 2.

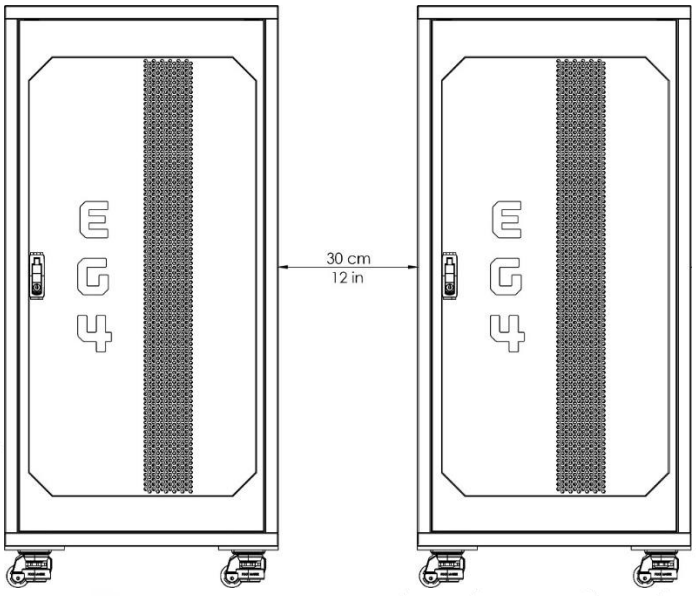

Figure 2 – EG4-LL / EG4-LL-S / LifePower4 6 Slot Battery Cabinet Spacing

CONCLUSION

The EG4 PowerPro series of ESS batteries WallMount, EG4-LL (6 slot cabinet), EG4-LL-S (6 slot cabinet) and LifePower4 (6 slot cabinet) respectively meet the requirements for it to be exempted from the 3 ft unit spacing restriction, as per UL9540A and UL9540. The installation manual for the batteries in ESS is listed at EG4 Electronics – Batteries.

Please contact support@eg4electronics.com for any questions you may have.

SUPPORTING CONTENT

UL 9540 "Energy Storage Systems and Equipment"
https://www.shopulstandards.com/ProductDetail.aspx?productId=UL9540

UL 9540A "ANSI/CAN/UL Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems"
https://www.shopulstandards.com/ProductDetail.aspx?productId=UL9540a

2021 International Residential Code (IRC), CHAPTER 3 BUILDING PLANNING, SECTION R328, ENERGY STORAGE SYSTEMS
https://codes.iccsafe.org/content/IRC2021P2/chapter-3-building-planning#IRC2021P2_Pt03_Ch03_SecR328

2021 International Fire Code (IFC), CHAPTER 12 ENERGY SYSTEMS, SECTION 1207, ELECTRICAL ENERGY STORAGE SYSTEMS (ESS)
https://codes.iccsafe.org/content/IFC2021P2/chapter-12-energy-systems#IFC2021P2_Pt03_Ch12_Sec1207

2022 California Residential Code, Title 24, Part 2.5 with Jan 2023 Errata, CHAPTER 3 BUILDING PLANNING, SECTION R328, ENERGY STORAGE SYSTEMS
https://codes.iccsafe.org/content/CARC2022P2/chapter-3-building-planning#CARC2022P2_Pt03_Ch03_SecR328

2022 California Fire Code, Title 24, Part 9 with Jan 2023, CHAPTER 12 ENERGY SYSTEMS, SECTION 1207, ELECTRICAL ENERGY STORAGE SYSTEMS (ESS)
https://codes.iccsafe.org/content/CAFC2022P2/chapter-12-energy-systems#CAFC2022P2_Pt03_Ch12_Sec1207

California Electric Commission (CEC) 2019, Joint Appendix JA12, Appendix JA 12 – Qualification Requirements for Battery Storage System
https://www.energy.ca.gov/sites/default/files/2019-09/JA12_Qualification_Requirements_for_Battery_Storage_System.pdf