



Synergy X UL 1558 LV Switchgear

Experience unparalleled performance with the Synergy X UL 1558 LV Switchgear, engineered for power, precision, and reliability. Built to the highest industry standards, its innovative design ensures seamless operation while maximizing efficiency. Count on Synergy X for industry-leading technology, expert craftsmanship, and proven durability in even the most demanding environments.



SYNERGY X

UL 1558 LV
SWITCHGEAR



Standards and Certifications:

The Synergy X UL 1558 LV Switchgear is manufactured in a state-of-the-art facility operating under a certified management system. We adhere to globally recognized standards, including Quality ISO 9001, Safety ISO 45001, and Environmental ISO 14001, ensuring excellence in every phase from design to final assembly. Our products comply with leading industry standards such as NEMA, CSA, IEEE, ANSI, IEC, and CE, reflecting our commitment to superior engineering and operational reliability.

ETL Listed:

Our switchgear undergoes rigorous independent testing at accredited laboratories, verifying compliance with UL standards and ensuring dependable performance in critical application.

Standards Compliance:

- UL 1558
- UL 891 designs available
- CSA C22.2 - Switchgear Assemblies
- IEEE C37.20.1 - IEEE Standard for Metal-Enclosed Low-Voltage (1000 Vac and Below, 3200 Vdc and Below) Power Circuit Breaker Switchgear

Custom Efficiency:

The Synergy X UL 1558 LV Switchgear features a modular design that supports a

component-agnostic approach, allowing customers to select their preferred components from a wide range of trusted manufacturers. Our adaptable configurations meet even the most challenging specifications, optimizing both performance and spatial efficiency.

Safe & Reliable:

The Synergy X UL 1558 LV Switchgear is engineered with operator safety and system reliability as top priorities. Internal compartmentalization, following IEC 61439-2 standards, minimizes the spread of internal arc faults, reducing operator risk and enhancing operational uptime. This robust design supports safer maintenance and seamless system upgrades, ensuring long-term reliability in critical applications.

Speed to Market:

Spike Electric Controls prioritizes speed to market with its Synergy X UL 1558 LV Switchgear. Designed with modular assemblies and efficient configurations, we streamline manufacturing and delivery, ensuring expedited lead times to meet tight project deadlines. Trust Spike for innovative solutions that balance performance, reliability, and rapid deployment for critical applications.

Product Overview:

The Synergy X UL 1558 LV Switchgear integrates advanced components and industry-leading circuit breakers to create tailored power solutions that meet specific client requirements. Its standardized design enables efficient manufacturing and expedited delivery, supporting tight project timelines.

- Type-tested arc prevention busbar systems
- Interrupting capacities up to 100KAIC at 600V
- Compatibility with Emax 2, Magnum PXR, and Masterpact low-voltage air circuit breakers, supporting up to 600 volts AC within a NEMA 1
- Switchgear ampacity up to 6000A
- Three vertically isolated compartments: Device, Bus, and Cable

Spike Offers:

ABB (Emax)
Square D (Masterpact)
Eaton (Magnum PXR)



SYNERGY X

UL 1558 LV
SWITCHGEAR



The Synergy X UL 1558 LV Switchgear features a modular assembly composed of one or more vertical sections, each divided into three distinct compartments: Device, Bus, and Cable. The device compartment is located at the front, the bus compartment in the middle, and the cable compartment at the rear for easy termination.

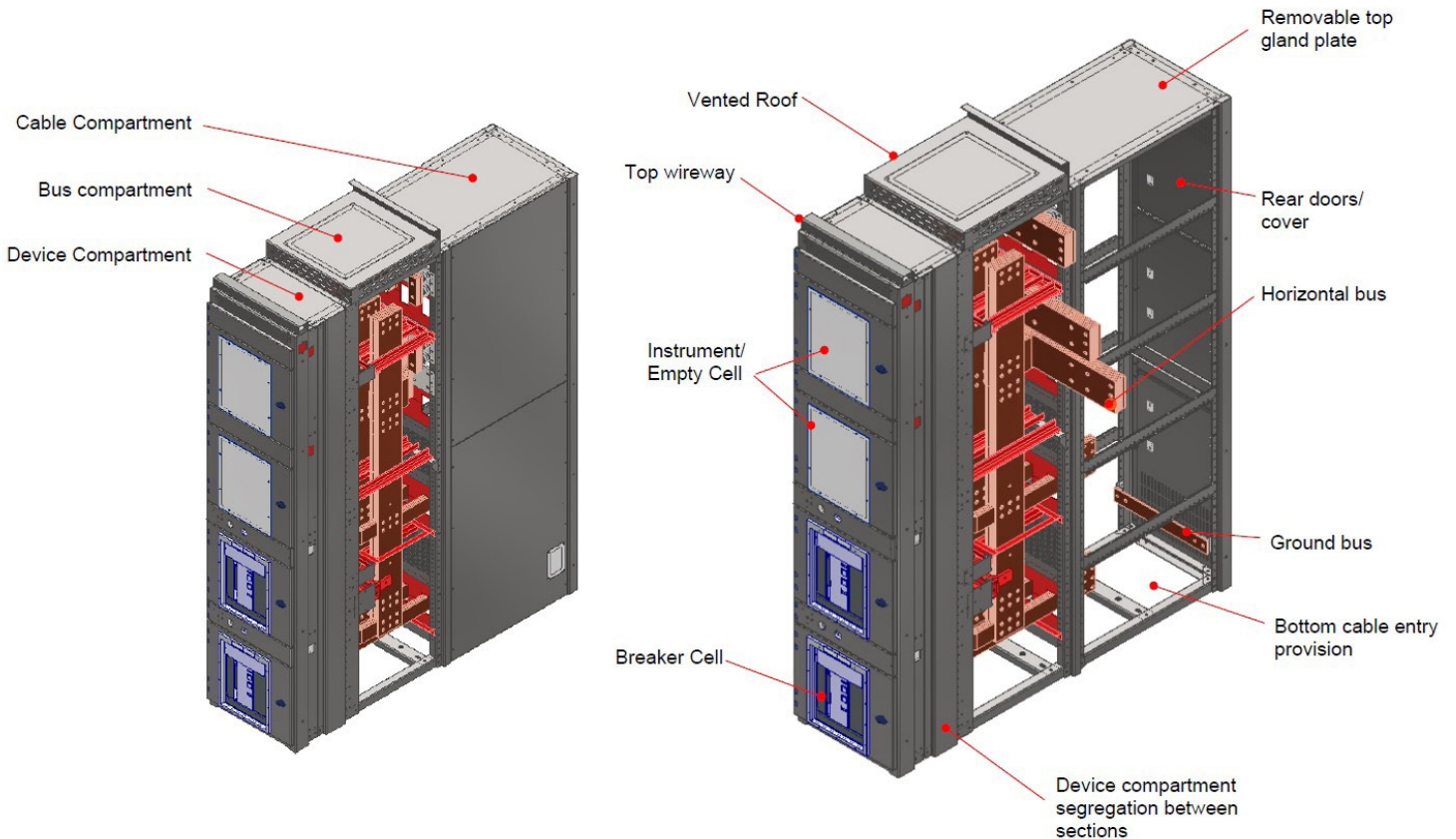
- **Flexible Configurations:** Designed with a 4-cell high maximum arrangement, supporting various combinations of Emax 2, Magnum PXR, Masterpact, or instrumentation cells within the device compartment.

Efficient Cable Management:

Each section includes top and bottom horizontal cableways for streamlined control wiring, with hinged front doors secured by at least one latch.

- **Rear Access:** The bus and cable compartments are easily accessible from the rear for efficient maintenance.
- **High-Capacity Bus System:** The bus compartment houses a continuous horizontal main bus rated up to 6000 amps, ensuring reliable power distribution. It can be positioned at the top or bottom of the compartment and connects to a vertical bus system rated up to 6000 amps.

- **Expandable Design:** The cable compartment offers ample space for terminations and maintenance, with standard rear covers or optional hinged doors. Its modular design allows for future expansion and seamless system integration.
- **Rear cover or doors**





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UL 1558 LV
SWITCHGEAR



Device Compartment:

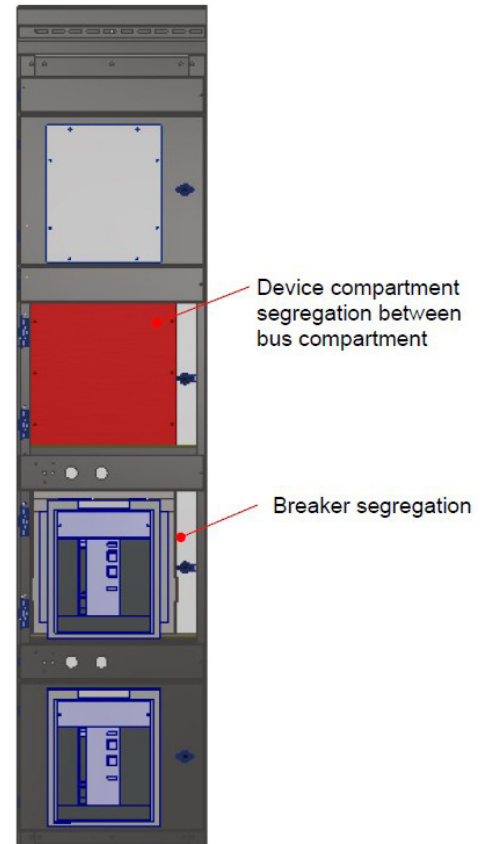
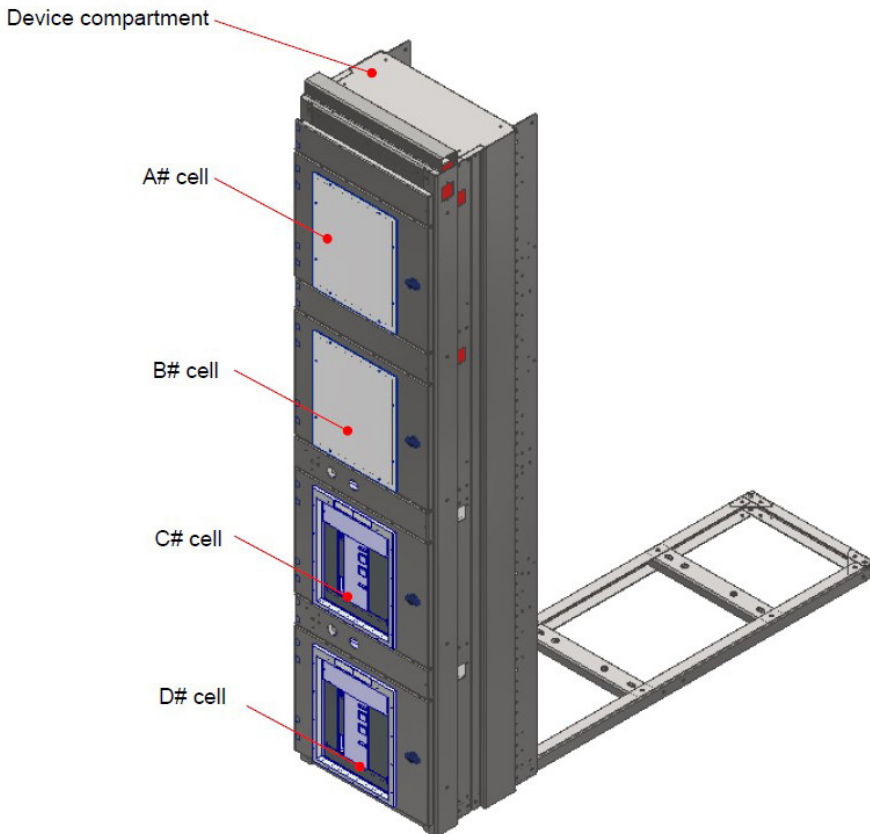
The device compartment of the Synergy X UL 1558 LV Switchgear supports a 4-cell stack that accommodates low-voltage power circuit breakers or custom devices. Each cell is metal-isolated from adjacent cells and from the bus compartment for enhanced safety and performance.

- **Versatile Cell Options:** Cells A, B, C, and D can house feeders, blank units, or control modules. Cells B and C also support main and tie breakers.

- **Integrated Instrumentation:** Breaker doors can be fitted with pilot lights, push buttons, control switches, and maintenance switches. Additional instruments, such as high-resistance ground relays, potential transformers, and protection relays, can be installed within the cell or on the door.
- **Organized Wiring:** The device compartment includes top and bottom wireways for control wiring, offering designated routes for wiring

management. The top wireway is approximately 4 inches (102 mm) high and 14 inches (356 mm) deep, while the bottom wireway is about 5 inches (127 mm) high and 14 inches (356 mm) deep. Both come with protective covers.

- **Simplified Installation:** Cells are numbered based on their location in the lineup. The far-left vertical section is labeled "1" and numbering ascends sequentially, simplifying installation and reference during assembly.





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UL 1558 LV
SWITCHGEAR

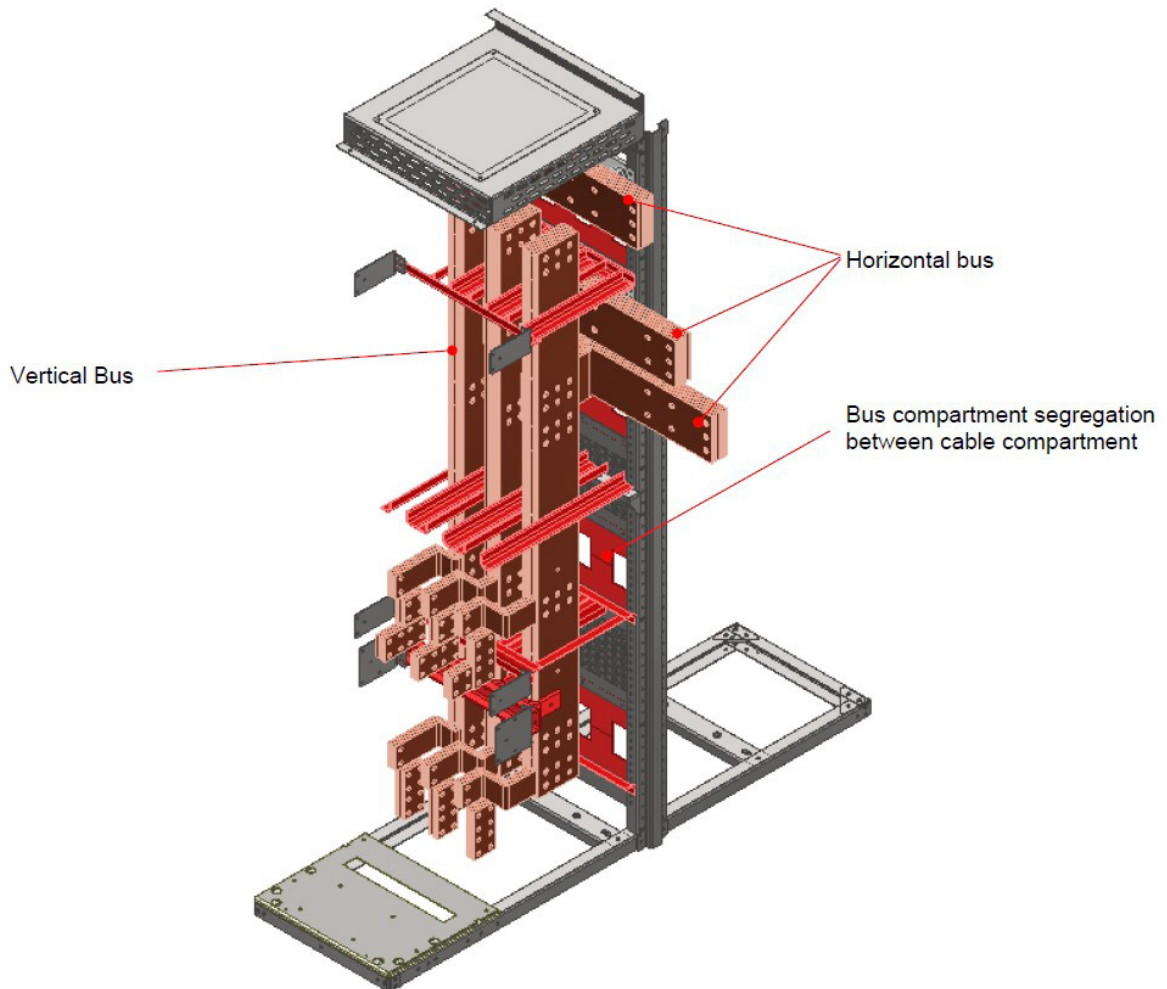


Bus Compartment & Comprehensive

Power Distribution:

- The bus compartment features a continuous horizontal main bus, rated between up to 6000 amps, that provides incoming power to all sections. This system, which can be located at the top or bottom of the compartment, connects to vertical distribution bars that supply power to individual cells, ensuring seamless power distribution across sections

- Logical Phase Arrangement:** The vertical bus follows a left-to-right phase arrangement of A-B-C when viewed from the front, with the same top-to-bottom arrangement applied to the horizontal bus.
- Configurable Bus Lamination:** Vertical and horizontal bus bars are constructed with one to four laminations per phase, depending on amperage requirements. The system supports both 3-phase 3-wire and 3-phase 4-wire configurations.
- Optional Neutral Phase:** A neutral bus is available upon request, matching the lamination count of the horizontal bus.
- Seamless Integration:** Sections shipped together are pre-connected, while sections from multiple shipments can be joined on-site using provided splice kits. All bus components are available in tin-plated or silver-plated finishes.





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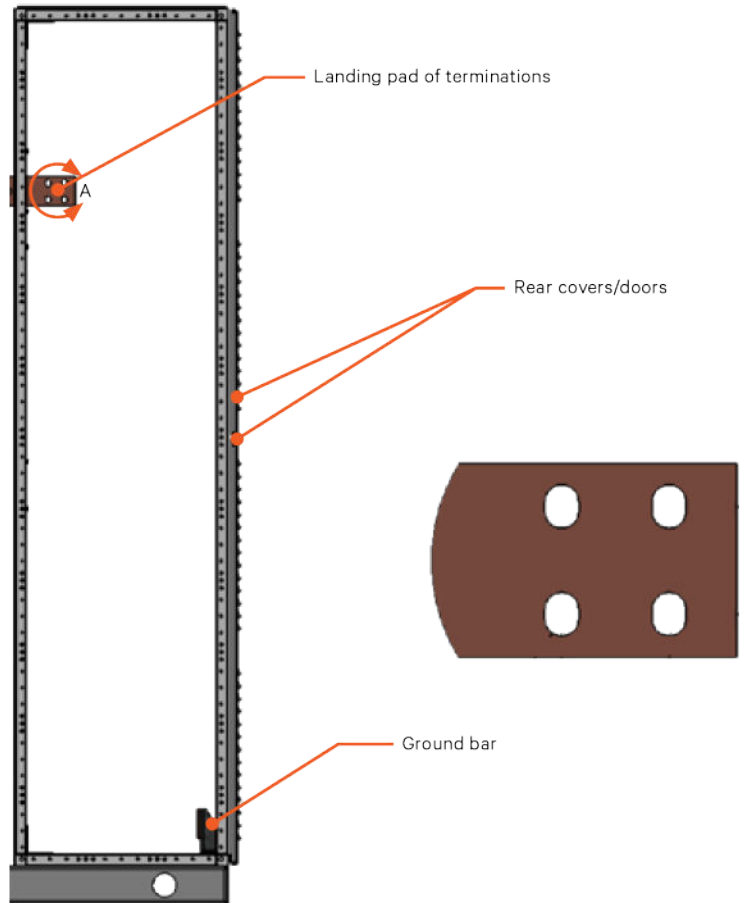
UL 1558 LV
SWITCHGEAR



Cable Compartment:

The cable compartment is where all terminations for main and feeder breakers are completed. Positioned at the rear of each section, its depth adjusts based on requested amperage and cable quantity. Standard depths include 22.7 in (576 mm), 30.2 in (768 mm), and 37.8 in (960 mm). It supports top or bottom cable entry and exit.

- **Access & Protection:** The compartment accepts two steel covers or optional hinged doors for secure access.
- **Grounding System:** A continuous ground bar runs through the compartment's top or bottom, connecting across vertical sections and ensuring effective system grounding.



Technical Specifications

Electrical Specification

Rated Voltages	Rated insulation voltage, Vi	2.2kV
	Rated operating voltage, Ve	Up to 600 VAC
	System types	3 phase-3 wire, 3 phase-4 wire
	Rated frequency	60 Hz
Rated Ampacities	Rated Current	Up to 6000A
	Rated short circuit current	Up to 100KAIC @ 600V

Mechanical Specification

Dimensions	Height: in (mm)	
	Width: in (mm)	
	Depth: in (mm)	
Surface Protection	Frame	
Enclosure Type	NEMA 1 or NEMA 3R	
Plastic Components	Self-extinguishing, flame retardant	
Busbars	Silver or Tin Plated Available (insulated bus is optional)	
	Bus Bracing	Up to 100KAIC @ 600V
Paint Finish	Enclosure	Standard - ANSI 61 Grey

*Note: NEMA 1 quoted as standard. Please specify if NEMA 3R is required.



SYNERGY X

UL 1558 LV
SWITCHGEAR



Main Bus Ratings & Bracing:

Synergy X LV uses the same rear bus compartment in all configurations.

- Short-Time Withstand Current – 85kA for 1s
- Short-Circuit Current Withstand – 100kA (230kA peak) – 4 cycles
- All currents are RMS symmetrical

Circuit Breaker Ratings:

The breaker frame and cradle sizes used in Synergy X LV Switchgear are limited to 800A, 1600A, 2000A, 3200A, 4000A, 5000A and 6000A.

Breaker ratings vary by manufactures as indicated below:

Amperage	Riser Bus Assembly	Main Bus Assembly
800A - 2000A	85kA	100kA
3200A - 6000A	85kA	100kA

Schneider Masterpact MTZ Breaker Elements

Amperes	Breaker/ Frame Type	Cubicle Width	rms Symmetrical Current Rating kA 50/60 Hz			Short Time Withstand Rating
			Interrupting at 240 Vac	Interrupting at 480 Vac	Interrupting at 635 Vac	
800 - 3200	MTZ2 H2, H3	24"	85	85	85	85
			100	100	100	85
4000 - 5000	MTZ3 HW, H3	36"	85	85	85	85
			100	100	100	85

Eaton Magnum PXR Breaker Elements

Amperes	Frame Type 6, 8, C	Cubicle Width	rms Symmetrical Current Rating kA 50/60 Hz			Short Time Withstand Rating
			Interrupting at 240 Vac	Interrupting at 480 Vac	Interrupting at 635 Vac	
800 - 3200	Standard	24"	85	85	85	85
			100	100	100	85
4000 - 5000	Double Narrow	36"	85	85	85	85/100
			100	100	100	85/100

ABB Emax 2 Breaker Elements

Amperes	Breaker Type	Cubicle Width	rms Symmetrical Current Rating kA 50/60 Hz			Short Time Withstand Rating
			Interrupting at 240 Vac	Interrupting at 480 Vac	Interrupting at 635 Vac	
800 - 3200	E2. 2, E4.2	24"	65	65	65	65
			85	85	85	85
			100	100	100	85
4000 - 6000	E6.2	36"	85	85	85	85/100
			100	100	100	85/100