



ReliaGear® SB EV Grid-to-Charger Switchboard Solutions



EV Grid-to-Charger Switchboards Agenda

EV Basics

- Electrification opportunity
- EV charging levels
- Key values
- Mission statement

ReliaGear® SB EV Grid-to-Charger switchboards

- Main Characteristics
- Catalog numbers
- Utility sections

Resources

- Choosing ABB Electrification
- Ordering through ABB empower
- Links and tools

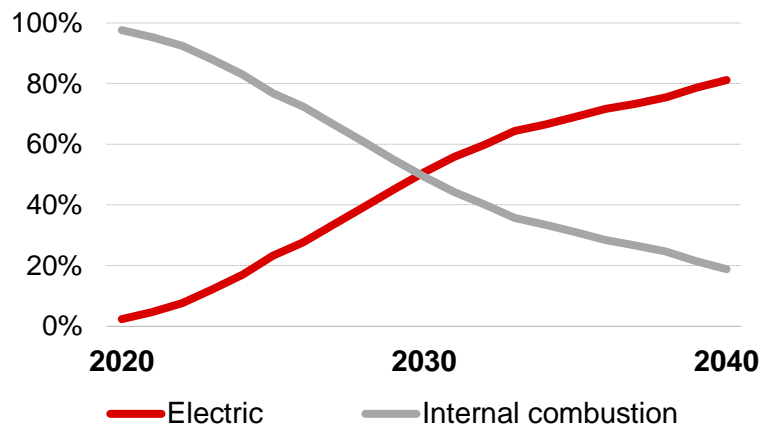


Electrification opportunity

A growing & transformational market

EV sales will exceed ICE sales

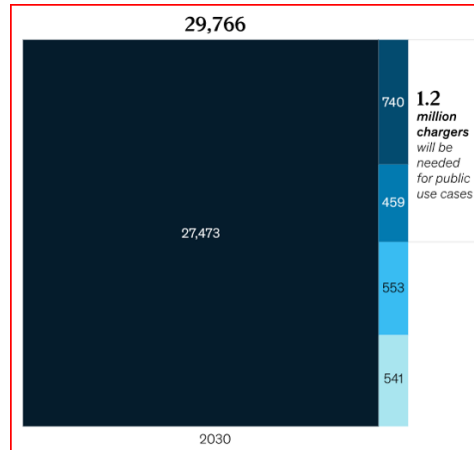
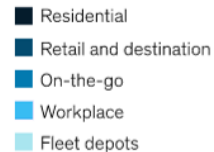
U.S. share of new passenger vehicle sales by drivetrain



- Electric Vehicle Outlook 2023, "US EV share of new passenger vehicle sales" BloombergNEF, Figure 80.

EV charger sales projections

Cumulative charger demand in 2030,¹ thousands of chargers



⁻¹ Source: McKinsey Center for Future Mobility

EV Grid-to-Charger switchboards needed (non-residential)

Addressable EV charger market in U.S.

- **1.2 million** chargers needed by 2030*

Addressable Switchboard Market in U.S.

- **1 switchboard** serves **8 EV chargers**
- **150,000** switchboards by 2030

* Amounts may grow depending on acceleration of trend

Market opportunity for EV charging and switchboards will be significant and steadily grow

Electric vehicle charging levels



EV charger current technology

- There are three levels of EV chargers: Levels 1, 2 and 3
 - Level 1 = 120 V AC
 - Level 2 = up to 240 V AC
 - **Level 3 = up to 600 V AC and 1000 V DC**

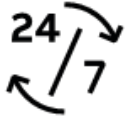
Level 3 characteristics

- DC fast charge
- Voltage: 208 V or 480 V 3-Phase AC
- Current: > 100 Amps
- Charging Power: **50 – 400 kW**
- Charging Time: 60% in **20 minutes**

Key Values for customers

EV Grid-to-Charger Switchboards

Key values



Continuous operation



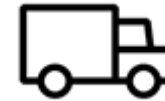
Easy installation in all conditions



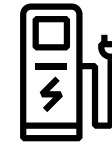
Safety & smooth operation without hazards



Value propositions



Available from distributor stock



Flexible future-proof design



Easy to order and install

Mission Statement

EV Grid-to-Charger solutions from ABB

“ABB provides the electrical equipment to ensure reliable power for EV charging, from the grid to the charger. Choose the smartest lineup to connect any source to any EV charger. Today, ABB distribution equipment powers 1,000+ charging locations across the U.S.”



ReliaGear® SB EV Grid-to-Charger Switchboards

Catalog numbers

Utility sections

Main characteristics addressing key values

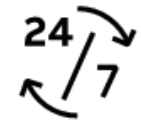
EV Grid-to-Charger Switchboards



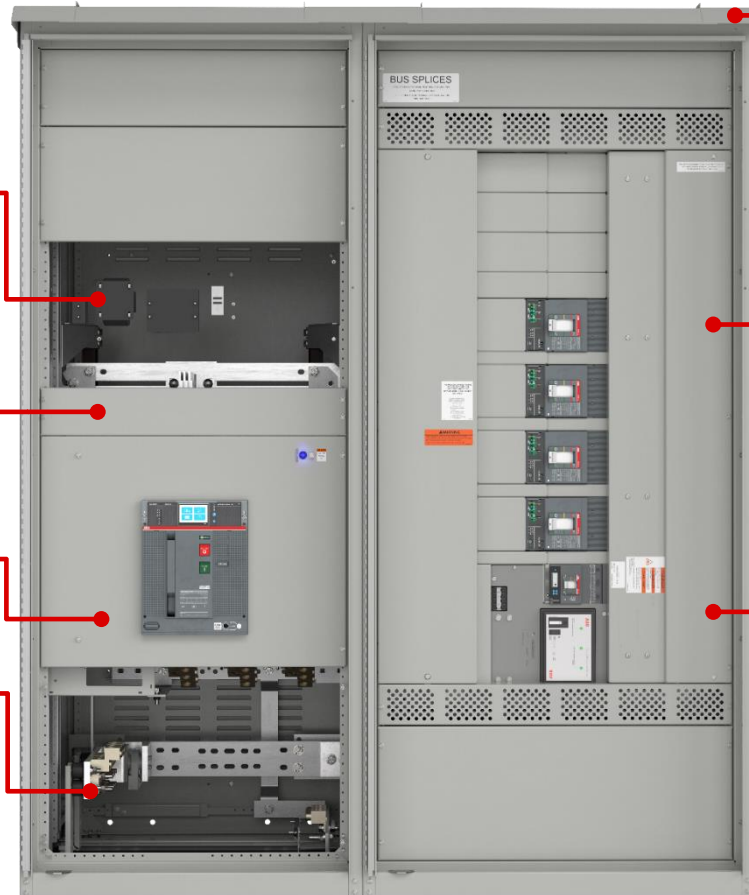
- DIN rail backplate to allow for easy field upgrades such as communications and remote control



- RELT on main to mitigate arc flash



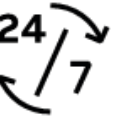
- Service release coil pre-installed (Emax 2 main only)
- Anti-rodent barrier
- Pre-installed heaters to protect in cold and/or damp weather



- NEMA 3R outdoor enclosure

- Feeders to meet popular EV charger sizes
- Electronic breakers to accommodate wide project variations

- Surge Protection included in each board



ReliaGear® SB EV Grid-to-Charger Switchboards

Catalog numbers



EV Grid-to-Charger Switchboards*

Catalog Number	Current (A)	Voltage (V)	Bus bracing / Interrupting rating (kA)	Enclosure rating	Dimensions (WxHxD - inches)	Main Breaker	Feeder Breaker Qty		EV Charger Power kW**	EV Charger Quantity
							XT5H-400 A	XT5H-600 A		
RSBG4126A3RBBA	1200	480Y/277	65	Nema 3R	45x91x30^	XT7H-1200	4	-	150 - 180	4
RSBG4206A3RBBA	2000	480Y/277	65	Nema 3R	70x91X40^	E2.2SF	-	4	150 - 350	4
RSBG4306A3RBBA	3000	480Y/277	65	Nema 3R	85x91x40^	E4.2SF	-	6	150 - 350	6
RSBG4406A3RBBA	4000	480Y/277	65	Nema 3R	120x91x55^	E6.2HF	-	8	150 - 350	8



EV Grid-to-Charger (EUSERC) Switchboards**

Catalog Number	Current (A)	Voltage (V)	Bus bracing / Interrupting rating (kA)	Enclosure rating	Dimensions (WxHxD - inches)	Main Breaker	Feeder Breaker Qty		EV Charger Power kW**	EV Charger Quantity
							XT5H-400 A	XT5H-600 A		
RSBG4206A3RBBE	2000	480Y/277	65	Nema 3R	110x91x51^^	E2.2SF	-	4	150 - 350	4
RSBG4406A3RBBE	4000	480Y/277	65	Nema 3R	220x91x61^^	E6.2HF	-	8	150 - 350	8

* Surge protection included in each switchboard (SPD Type 2, 200kA)

** Level 3 charger

^ +5” overhang

^^ +4” overhang

[Door kits for EUSERC only](#)

EVG2C Utility Sections for Switchboards

Other utility section (Non-EUSERC)

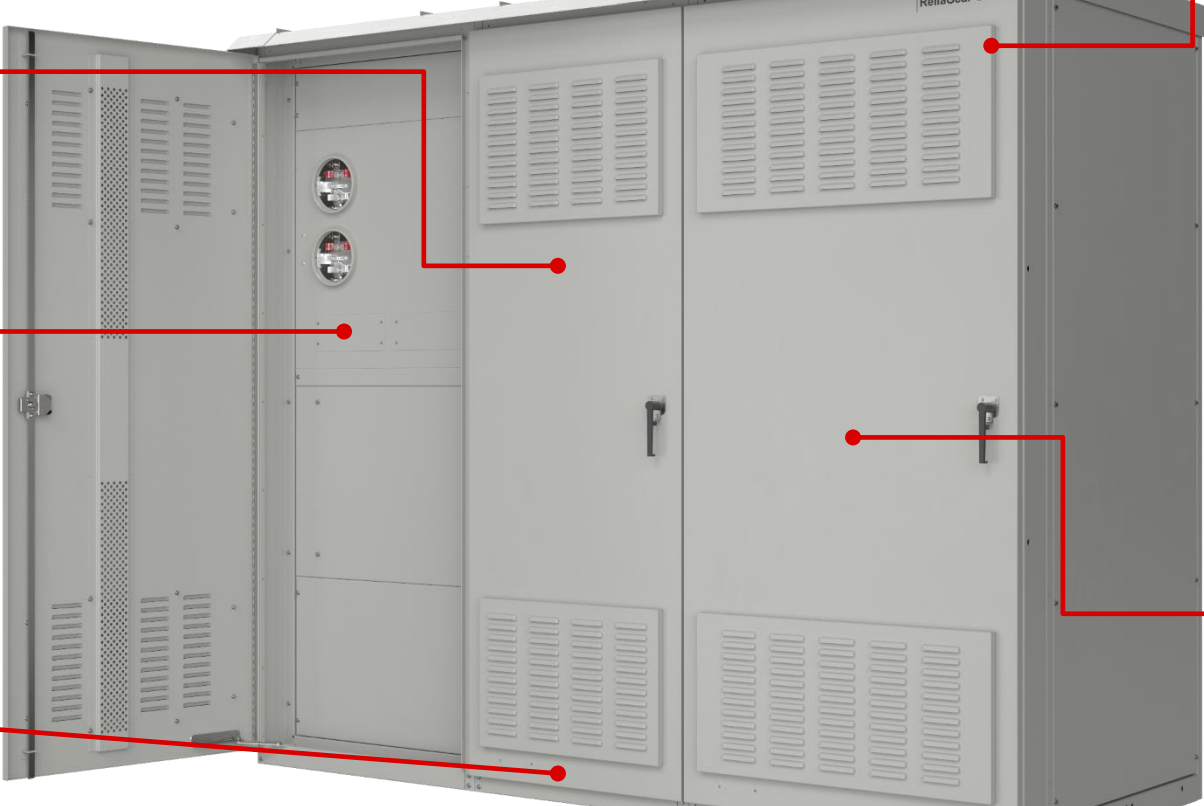


Non-EUSERC switchboard with utility section ordered separately

- Utility section is **cable connected** and can be sold separately
- Use short cycle “S” in empower for faster lead times
- Add **PO# to drawing notes**, if utility section ordered later

EVG2C Utility Sections for Switchboards

EUSERC utility section

- 
- DIN rail backplate to allow for easy field upgrades such as communications and remote control
 - **Hard Bussed EUSERC utility section**
 - ReliaGear® SB 2000 A - EUSERC
 - ReliaGear® SB 4000 A - EUSERC
 - **List of EUSERC utilities supported**
 - **Door kits**
 - Group 1 door kit standard
 - Groups 2-4 sold separately
 - Anti-rodent barrier
 - Pre-installed heaters to protect in cold weather and/or damp weather
 - NEMA 3R Outdoor rated enclosure
 - Pre-selected Feeder to meet popular EV Charger sizes
 - Electronic breaker with a wide range in settings to accommodate project variations
 - Surge Protection included in each board

EUSERC switchboard with pre-mounted Group 1 door kit

Resources

Choosing ABB Electrification

How to order

Resources and tools

Choosing ABB Electrification

From load centers to substations – Electrifying the U.S. for more than 100 years

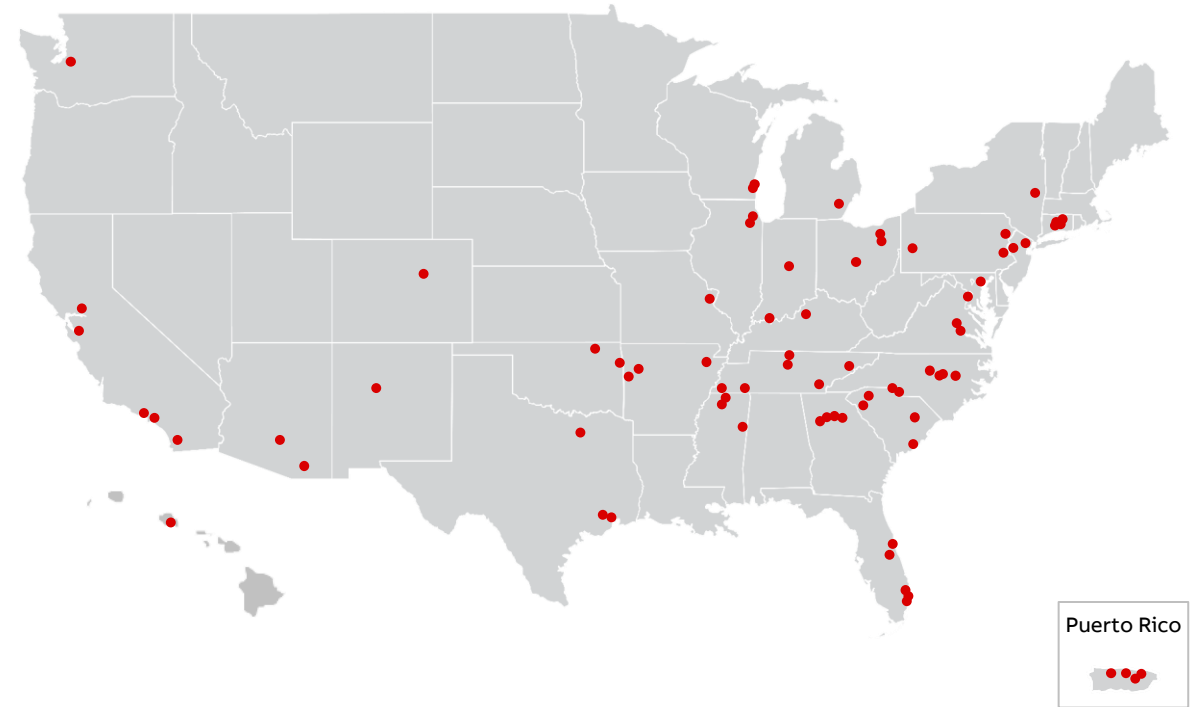
Expertise and Experience

- 1,000+ EV charging locations electrified across the U.S.
- World-class breaker technology
- Digital solutions for remote monitoring and control
- Deep industry expertise in residential, commercial and industrial electrical markets
- Building electrical gear for the U.S. for over a century
- Global leader in the EV charging space since 2010

Design and Support

- Local application engineers who design around customer needs and goals using industry and utility expertise
- Solutions across both medium and low voltage
- Distribution network: Kitting, execution on job site
- Reliable technical and customer support services

Major ABB locations in the U.S.



Ordering EVG2C Switchboards

Order through ABB empower

www.empower.abb.com



EUSERC hard busse



Other utility cable connected

1. Determine switchboard
 - Ampacity
 - If utility needed, select **EUSERC or Other Utility**
 - If **EUSERC**, select door kit (group 1 comes standard)
2. Add part numbers to **empower flow**
 - EVG2C switchboards
 - EUSERC door kits
3. Open **empower Quote** to add **Other Utility** section
 - Use short cycle “S” for faster lead time
 - Add PO# to drawing notes, if utility section ordered later

Price and Availability

Upload Excel File

Copy & Paste

R5BG4206A3RBBE

Product Number

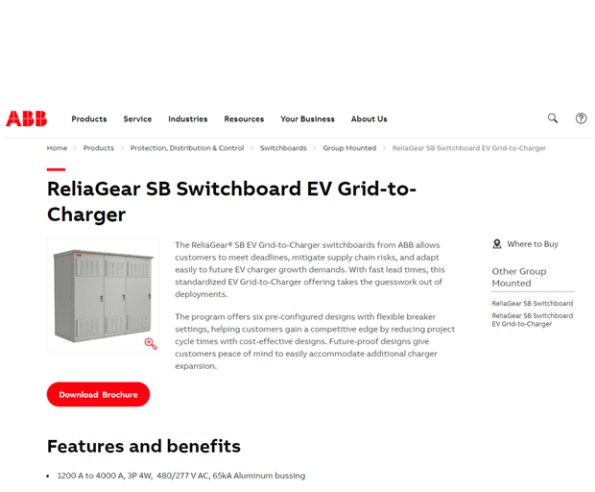
Qty.

Quote Items

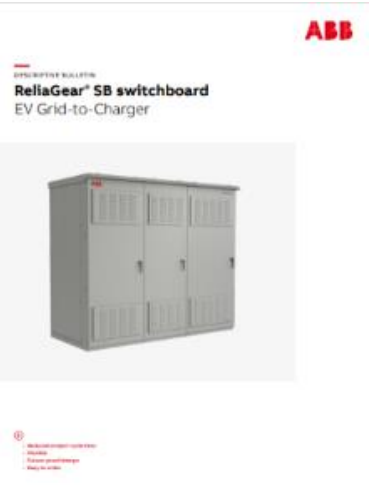
Item	Description	Quantity	Unit Price	Total Price
1	EVG2C Switchboard	1		
2	EUSERC Door Kit	1		

Links and tools

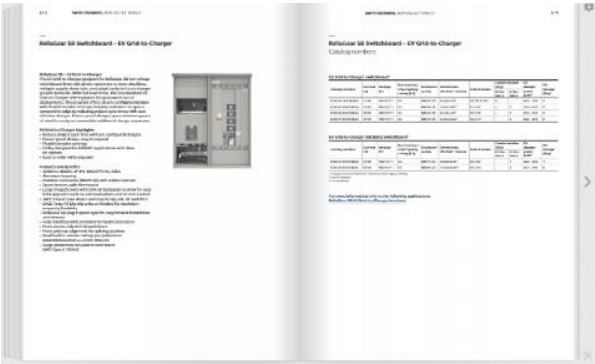
Learn more



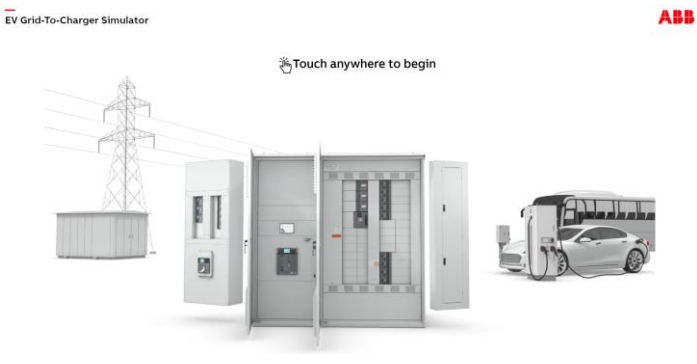
[Website](#)



[EVG2C Brochure](#)



[ABB Buylog - Switchboard](#)



[EV Grid-to-Charger Simulator](#)



ABB



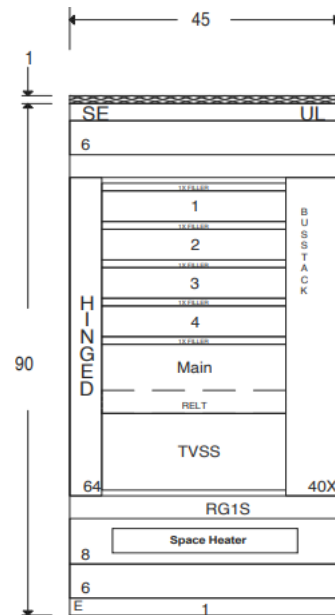
Appendix

EUSERC Utility Groups

ReliaGear® SB EVG2C – 1200A

Catalog **RSBG4126A3RBBA**

Dimensions



Main Characteristics

Configuration covers the following number of chargers:

Quantity 4

Level 3

150 – 180kW

Feeders – Ekip DIP or Touch

4 – XT5 400A (dial down to 240A)

13X space (future expansion)

Electrical characteristics

Voltage: 480 V

Current: 1200 A

Breaking capacity: 65 kA

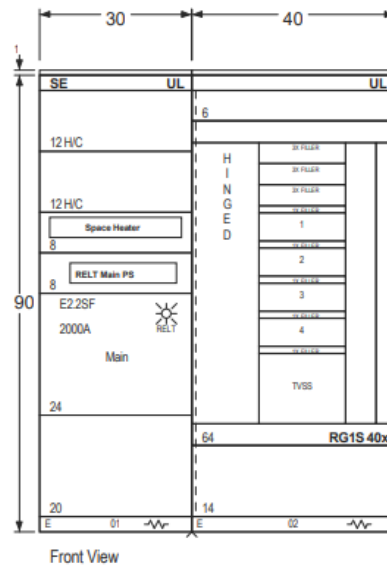
Flexible, standardized, with reduced lead times

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ReliaGear® SB EVG2C – 2000A

Catalog **RSBG4206A3RBBA**

Dimensions



Main Characteristics

Configuration covers the following number of chargers:

Quantity 4

Level 3

150 – 350kW

Feeders – Ekip DIP or Touch

4 – XT5 600A (dial down to 240A)

11X space (future expansion)

Electrical characteristics

Voltage: 480 V

Current: 2000 A

Breaking capacity: 65 kA

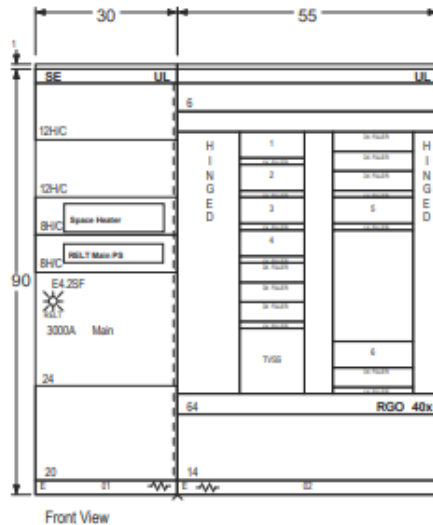
Flexible, standardized, with reduced lead times

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ReliaGear® SB EVG2C – 3000A

Catalog **RSBG4306A3RBBA**

Dimensions



Main Characteristics

Configuration covers the following number of chargers:

Quantity 6

Level 3

150 – 350kW

Feeders – Ekip DIP or Touch

6 – XT5 600A (dial down to 240A)

22X space (future expansion)

Electrical characteristics

Voltage: 480 V

Current: 3000 A

Breaking capacity: 65 kA

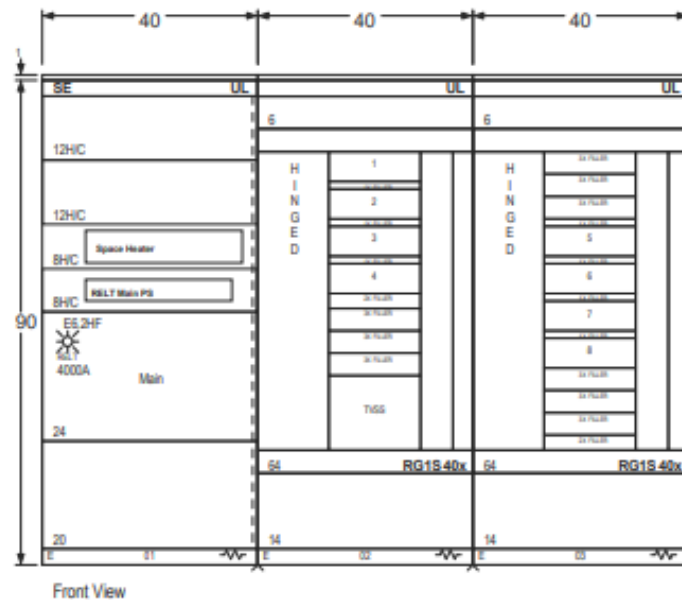
Flexible, standardized, with reduced lead times

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ReliaGear® SB EVG2C – 4000A

Catalog **RSBG4406A3RBBA**

Dimensions



Main Characteristics

Configuration covers the following number of chargers:

Quantity 8

Level 3

150 – 350kW

Feeders – Ekip DIP or Touch

8 – XT5 600A (dial down to 240A)

30X space (future expansion)

Electrical characteristics

Voltage: 480 V

Current: 4000 A

Breaking capacity: 65 kA

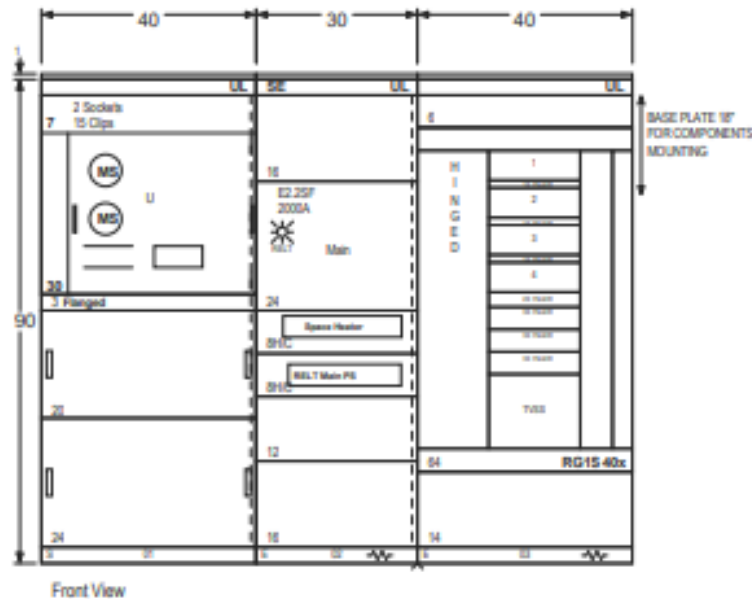
Flexible, standardized, with reduced lead times

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ReliaGear® SB EVG2C – 2000A EUSERC

Catalog **RSBG4206A3RBBE**

Dimensions



Main Characteristics

Configuration covers the following number of chargers:

Quantity 4

Level 3

150 – 350kW

Feeders – Ekip DIP or Touch

4 – XT5 600A (dial down to 240A)

11X space (future expansion)

Electrical characteristics

Voltage: 480 V

Current: 2000 A

Breaking capacity: 65 kA

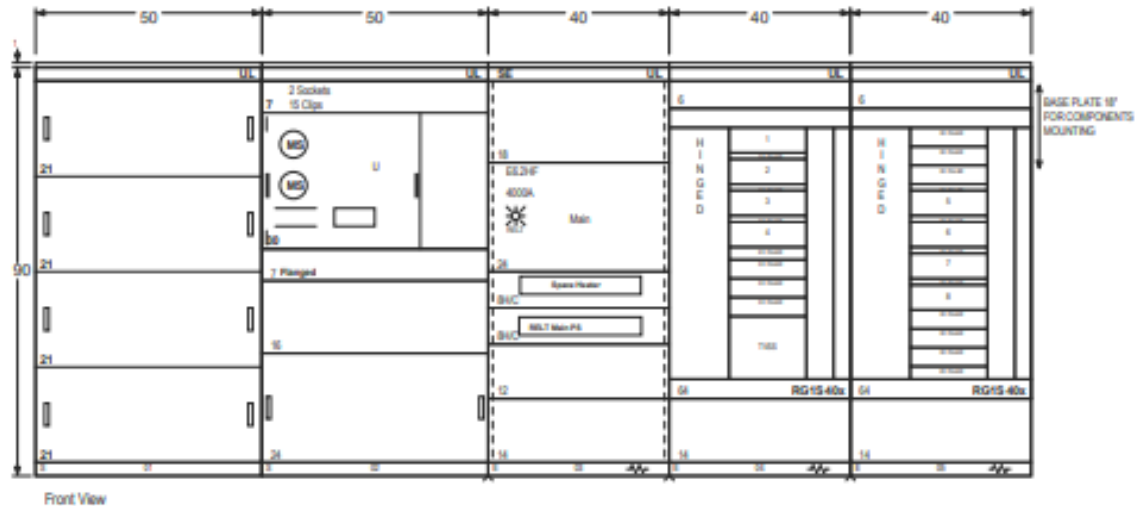
Flexible, standardized, with reduced lead times

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ReliaGear® SB EVG2C – 4000A EUSERC

Catalog **RSBG4406A3RBBE**

Dimensions



Main Characteristics

Configuration covers the following number of chargers:

Quantity 8

Level 3

150 – 350kW

Feeders – Ekip DIP or Touch

8 – XT5 600A (dial down to 240A)

11X space (future expansion)

Electrical characteristics

Voltage: 480 V

Current: 4000 A

Breaking capacity: 65 kA

Flexible, standardized, with reduced lead times

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EUSERC Door Kits



- EUSERC catalog numbers ship with Group 1 as the standard
 - RSBG4206A3RBBE (2000 A) switchboard
 - RSBG4406A3RBBE (4000 A) switchboard
- Other specific door kit groups can be ordered separately
- Simple and fast field installation by removing the pin from the hinge and replacing with the door kit that matches the specific utility required

Group	Part number for 2000 A	Part number for 4000 A	Door kit description
1*	1SQA013209R0001	1SQA014377R0001	15 clip sockets — one 30" cover with 2 sockets
2**	1SQA013210R0001	1SQA014378R0001	13 clip sockets — one 15" blank cover, one 15" cover with 13 clips, screws
3	1SQA013211R0001	1SQA014379R0001	15 clip sockets — one 15" blank cover, one 15" cover with 15 clips, screws
4	1SQA013212R0001	1SQA014380R0001	Remote sockets — two 15" blank covers, screws

* Group 1 door kits ship with switchboard
** If second socket is required, order 2 quantities

EUSERC Utility List

Door kits by utility name

Number	EUSERC utility list^	Door kit group	Min. height lugs	Sockets	Number of clips	EUSERC page	Meter page	Door kit part number — 2000 A	Door kit part number — 4000 A
1	Southern California Edison	Group 1*	42	2	15	322	332	1SQA013209R0001	1SQA014377R0001
2	Pacific Gas & Electric Co		42	2	15	322	332	1SQA013209R0001	1SQA014377R0001
3	Arizona Public Service	Group 2**	42	1	13	322	332	1SQA013210R0001	1SQA014378R0001
4	Portland General Electric		42	1	13	322	332	1SQA013210R0001	1SQA014378R0001
5	Seattle City Light		42	1	13	322	332	1SQA013210R0001	1SQA014378R0001
6	NV Energy		42	1	13	322	332	1SQA013210R0001	1SQA014378R0001
7	Hawaiian Electric Company Inc		42	1	13	322	332	1SQA013210R0001	1SQA014378R0001
8	Burbank Water & Power		42	1	13	322	332	1SQA013210R0001	1SQA014378R0001
9	Snohomish Country Pud		42	1	13	322	332	1SQA013210R0001	1SQA014378R0001
10	Public Service Co of NM		42	1	13	322	332	1SQA013210R0001	1SQA014378R0001
11	Puget Sound Energy		42	1	13	322	332	1SQA013210R0001	1SQA014378R0001
12	Los Angeles Department Of Water And Power	Group 3	42	1	15	322	332	1SQA013211R0001	1SQA014379R0001
13	San Diego Gas & Electric		42	1	15	322	332	1SQA013211R0001	1SQA014379R0001
14	Pacificorp	Group 4	42	Remote	13	322	332	1SQA013212R0001	1SQA014380R0001
15	Pacific Power & Light		42	Remote	13	322	332	1SQA013212R0001	1SQA014380R0001
16	Rocky Mountain Power		42	Remote	13	322	332	1SQA013212R0001	1SQA014380R0001

* Group 1 door kits ship with switchboard

** If second socket is required, order 2 quantities

^ Electrical service assumes 3-phase, 4-wire wye configuration

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