

SAG588820100 SAG588820200

System Application Guide Spec No. 588820100 (Model 48BA1200-19) Spec No. 588820200 (Model 48BA1200-23) Revision M. November 27, 2019

SYSTEM OVERVIEW

<u>Home</u>

Description: Front Access Battery Rack System consisting of a nominal 19" wide

7' tall or 23" wide 7', 6', or 5' tall relay rack, battery trays, and busbar termination assembly. The battery trays accommodate a variety of front terminal -48V valve regulated lead acid (VRLA) batteries. Includes factory routed and lugged cabling from each battery tray to the termination assembly. May also be equipped with optional left or right side mounted battery disconnect circuit breakers. When equipped with battery disconnect circuit

breakers, factory CB alarm wiring is provided to an alarm card. The alarm card

provides external relay contacts and resistive battery for connection to

customer external alarm circuits.

Application: For use with -48VDC NetSure™ Power Systems

and other -48VDC Power Systems.

Spec. Nos.: 588820100 (19").

588820200 (23").

Models: 48BA1200-19 (19").

48BA1200-23 (23").

Output Voltage: -48VDC.

Capacity: 960A, maximum, when equipped

with six (6) battery trays.

Agency Approval: <u>UL Listed, Seismic Zone 4.</u>

Framework Type: Relay Rack.

Mounting Width: 19" or 23" Wide (Nominal) Relay Rack (part of system).

Mounting Depth: 588820100: Determined by battery trays ordered.

A 16.5" deep, 21" deep, and 22" deep battery tray is available.

588820200: Determined by battery trays ordered.

A 22.5" deep battery tray is available.

Access: Front for Installation and Maintenance.

Color: Dark Gray.

List Options: Common Equipment (19" Mounting), Common Equipment (23" Mounting),

Battery Tray (19" Mounting, 17" Deep), Battery Tray (19" Mounting, 21" Deep), Battery Tray (19" Mounting, 22" Deep), Battery Tray (23" Mounting, 21" Deep).

Accessory Options: <u>Batteries</u>, <u>Optional Front Battery Cover</u>, <u>Optional Battery Disconnect Circuit</u>

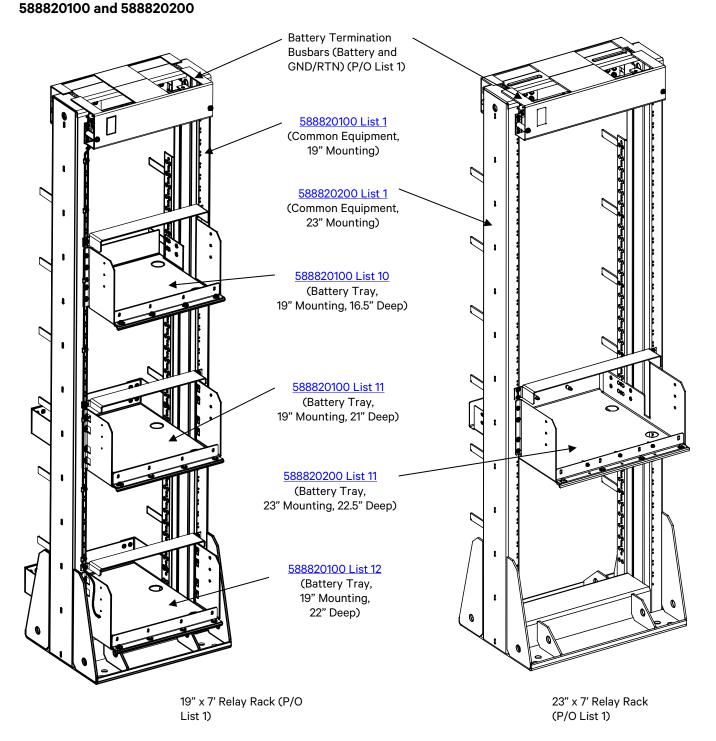
Breaker Kits

TABLE OF CONTENTS

SYSTEM OVERVIEW	1
MAIN COMPONENTS ILLUSTRATIONS	
ORDERING INFORMATION List Options	4
LIST DESCRIPTIONS	
ACCESSORY DESCRIPTIONS	
SPECIFICATIONS	14
MECHANICAL SPECIFICATIONS	
BATTERY MANUFACTURER INFORMATION	20
RELATED DOCUMENTATION	20

<u>Home</u>

MAIN COMPONENTS ILLUSTRATIONS



ORDERING INFORMATION



List Options

Order the following by the items Part Number as specified in the following table.

When viewing electronically, click on the *Link* to jump to the detailed description page.

List No.	Part Number	Description
1	58882010001	Common Equipment, -48V, 19" Battery Rack System Includes (1) relay rack, (2) vertical tray mounting brackets, (1) busbar kit with covers, (12) cable lacing brackets, (1) instruction manual, and packaging.
<u>10</u>	58882010010	Battery Tray, 19" Mount, 16.5" Deep Includes tray, hardware, cable cut to length, lugs.
<u>11</u>	58882010011	Battery Tray, 19" Mount, 21" Deep Includes tray, hardware, cable cut to length, lugs.
<u>12</u>	58882010012	Battery Tray, 19" Mount, 22" Deep Includes tray, hardware, cable cut to length, lugs.
1	58882020001	Common Equipment, -48V, 23" Battery Rack System Includes (1) 7' tall relay rack, (2) vertical tray mounting brackets, (1) busbar kit with covers, (12) cable lacing brackets, (1) instruction manual, and packaging.
<u>2</u>	58882020002	Common Equipment, -48V, 23" Battery Rack System Includes (1) 6' tall relay rack, (2) vertical tray mounting brackets, (2) busbar kits with covers, (10) cable lacing brackets, (1) instruction manual, and packaging.
<u>3</u>	58882020003	Common Equipment, -48V, 23" Battery Rack System Includes (1) 5' tall relay rack, (2) vertical tray mounting brackets, (1) busbar kit with covers, (8) cable lacing brackets, (1) instruction manual, and packaging.
<u>11</u>	58882020011	Battery Tray, 23" Mount, 22.5" Deep Includes tray, hardware, cable cut to length, lugs.

Notes:

- 1) 588820100: Vertical tray spacing is automatically determined by battery tray selection; 7RU for List 10, 6RU for List 11, and 8RU for List 12.
 - 588820200: Vertical tray spacing is automatically determined by battery selection; 6RU, 7RU, or 8RU. If no battery is selected, spacing is 8RU.
- 2) 588820100: The locations of the cable lacing brackets is determined by the tray spacing, total of six (6) per side. 588820200: The locations of the cable lacing brackets is determined by the tray spacing, total of six (6) per side for 6RU or 7RU and five (5) per side for 8RU.
- 3) Cable size for each tray is 2AWG for optional battery disconnect circuit breakers selected up to 150A and 1/0AWG for circuit breakers selected over 150A or for systems without battery disconnects.
- 4) If a battery type is not selected, battery terminal lugs are provided and shipped loose for all batteries listed for use with the battery tray ordered and for the cable size determined in Note 3).

Spec. No. 588820100 (Model 48BA1200-19) Spec. No. 588820200 (Model 48BA1200-23) SAG588820100 SAG588820200

Revision M, November 27, 2019

<u>Home</u>

Accessory Options

Order the following by the items Part Number as specified in the following table. When viewing electronically, click on the *link* to jump to the detailed description page.

Description	Part Number
<u>Batteries</u>	
Optional Front Battery Cover	See ACCESSORY
Optional Battery Disconnect Circuit Breaker Kits	DESCRIPTIONS Section

<u>Home</u>

LIST DESCRIPTIONS

588820100 List 1: Common Equipment, -48V, 19" Battery Rack System

Features

- Provides the following equipment: (1) nominal 19" wide by 7' tall relay rack, (2) vertical tray mounting brackets, (1) busbar kit with covers, (12) cable lacing brackets, (1) instruction manual, and packaging.
- Factory assembled per battery trays and optional battery disconnect circuit breakers ordered.

Restrictions

The relay rack accommodates up to six (6) battery trays (spaced 6RU or 7RU apart, as determined by the battery tray ordered), or five (5) battery trays (spaced 8RU apart).

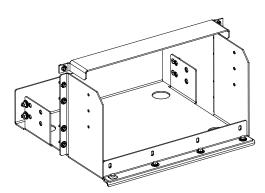
Ordering Notes

1) Order as required.

588820100 List 10: Battery Tray, 19" Mount, 16.5" Deep

Features

- Provides a 16.5" deep battery tray for the nominal 19" wide relay rack provided as part of List 1. The battery tray holds four (4) 12V front terminal valve regulated lead acid (VRLA) batteries. Battery cabling is factory provided and connected to the system's main busbars. Batteries are configured as one (1) 48V string per tray.
- Trays can be ordered with or without a battery disconnect circuit breaker. When circuit breakers are ordered, one is provided in the – 48V lead of each battery string (1 circuit breaker per tray).
- Refer to the "Physical Size Information" section for dimensions.



Restrictions

Designed to accommodate the batteries listed under Batteries in the ACCESSORY DESCRIPTIONS section.

A single battery tray must mount at bottom of relay rack. Multiple battery trays must mount starting at bottom of relay rack and working upward. Factory spaces battery trays 7RU apart.

Cable size for each tray is 2AWG for optional battery disconnect circuit breakers selected up to 100A and 1/0AWG for circuit breakers selected over 100A or if circuit breakers are not selected.

Ordering Notes

- 1) Order up to six (6) battery trays per relay rack, as required.
- Order batteries separately. See Batteries in the ACCESSORY DESCRIPTIONS section. Battery cables and lugs factory provided and connected.
- 3) If an optional battery disconnect circuit breaker is desired, order per *Optional Battery Disconnect Circuit Breaker Kits* in the ACCESSORY DESCRIPTIONS section.

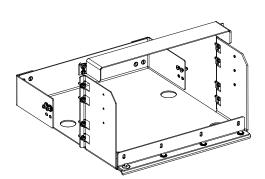
588820100 List 11: Battery Tray, 19" Mount, 21" Deep

Features

- Provides a 21" deep battery tray for the nominal 19" wide relay rack provided as part of List 1. The battery tray holds four (4) 12V front terminal valve regulated lead acid (VRLA) batteries. Battery cabling is factory provided and connected to the system's main busbars. Batteries are configured as one (1) 48V string per tray.
- ◆ Trays can be ordered with or without a battery disconnect circuit breaker. When circuit breakers are ordered, one is provided in the -48V lead of each battery string (1 circuit breaker per tray).
- Refer to the "Physical Size Information" section for dimensions.



Designed to accommodate the batteries listed under Batteries in the ACCESSORY DESCRIPTIONS section.



Revision M, November 27, 2019

A single battery tray must mount at bottom of relay rack. Multiple battery trays must mount starting at bottom of relay rack and working upward. Factory spaces battery trays 6RU apart.



Cable size for each tray is 2AWG for optional battery disconnect circuit breakers selected up to 100A and 1/0AWG for circuit breakers selected over 100A or if circuit breakers are not selected.

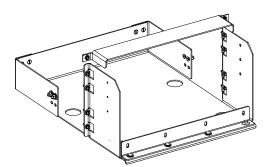
Ordering Notes

- 1) Order up to six (6) battery trays per relay rack, as required.
- Order batteries separately. See Batteries in the ACCESSORY DESCRIPTIONS section. Battery cables and lugs factory provided and connected.
- If an optional battery disconnect circuit breaker is desired, order per Optional Battery Disconnect Circuit Breaker Kits in the ACCESSORY DESCRIPTIONS section.

588820100 List 12: Battery Tray, 19" Mount, 22" Deep

Features

- Provides a 22" deep battery tray for the nominal 19" wide relay rack provided as part of List 1. The battery tray holds four (4) 12V front terminal valve regulated lead acid (VRLA) batteries. Battery cabling is factory provided and connected to the system's main busbars. Batteries are configured as one (1) 48V string per tray.
- ◆ Trays can be ordered with or without a battery disconnect circuit breaker. When circuit breakers are ordered, one is provided in the – 48V lead of each battery string (1 circuit breaker per tray).
- Refer to the "Physical Size Information" section for dimensions.



Restrictions

Designed to accommodate the batteries listed under Batteries in the ACCESSORY DESCRIPTIONS section.

A single battery tray must mount at bottom of relay rack. Multiple battery trays must mount starting at bottom of relay rack and working upward. Factory spaces battery trays 8RU apart.

Cable size for each tray is 2AWG for optional battery disconnect circuit breakers selected up to 100A and 1/0AWG for circuit breakers selected over 100A or if circuit breakers are not selected.

Ordering Notes

- 1) Order up to five (5) battery trays per relay rack, as required.
- 2) Order batteries separately. See *Batteries* in the ACCESSORY DESCRIPTIONS section. Battery cables and lugs factory provided and connected.
- If an optional battery disconnect circuit breaker is desired, order per Optional Battery Disconnect Circuit Breaker Kits in the ACCESSORY DESCRIPTIONS section.



588820200 List 1: Common Equipment, -48V, 23" Battery Rack System

Features

- Provides the following equipment: (1) nominal 23" wide by 7' tall relay rack, (2) vertical tray mounting brackets, (1) busbar kit with covers, (12) cable lacing brackets, (1) instruction manual, and packaging.
- Factory assembled per battery trays and optional battery disconnect circuit breakers ordered.

Restrictions

The relay rack accommodates up to six (6) battery trays when spaced 6RU or 7RU apart and five (5) battery trays when spaced 8RU apart. Battery selection determines tray spacing.

Ordering Notes

1) Order as required.

588820200 List 2: Common Equipment, -48V, 23" Battery Rack System

Features

- Provides the following equipment: (1) nominal 23" wide by 6' tall relay rack, (2) vertical tray mounting brackets, (2) busbar kits with covers, (10) cable lacing brackets, (1) instruction manual, and packaging.
- Factory assembled per battery trays and optional battery disconnect circuit breakers ordered.

Restrictions

The 6-foot relay rack accommodates up to five (5) battery trays when spaced 6RU apart and four (4) battery trays when spaced 7RU or 8RU apart. Battery selection determines tray spacing.

Ordering Notes

1) Order as required.

588820200 List 3: Common Equipment, -48V, 23" Battery Rack System

Features

- Provides the following equipment: (1) nominal 23" wide by 5' tall relay rack, (2) vertical tray mounting brackets, (1) busbar kit with covers, (8) cable lacing brackets, (1) instruction manual, and packaging.
- Factory assembled per battery trays and optional battery disconnect circuit breakers ordered.

Restrictions

The 5-foot relay rack accommodates up to four (4) battery trays when spaced 6RU apart and three (3) battery trays when spaced 7RU or 8RU apart. Battery selection determines tray spacing.

Ordering Notes

Order as required.

588820200 List 11: Battery Tray, 23" Mount, 22.5" Deep

Home

Features

- Provides a 22.5" deep battery tray for the nominal 23" wide relay rack provided as part of List 1. The battery tray holds four (4) 12V front terminal valve regulated lead acid (VRLA) batteries. Battery cabling is factory provided and connected to the system's main busbars. Batteries are configured as one (1) 48V string per tray.
- ◆ Trays can be ordered with or without a battery disconnect circuit breaker. When circuit breakers are ordered, one is provided in the -48V lead of each battery string (1 circuit breaker per tray).
- Refer to the "Physical Size Information" section for dimensions.

Restrictions

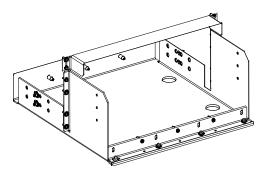
Designed to accommodate the batteries listed under *Batteries* in the ACCESSORY DESCRIPTIONS section.

A single battery tray must mount at bottom of relay rack. Multiple battery trays must mount starting at bottom of relay rack and working upward. Factory spaces battery trays 6RU, 7RU, or 8RU apart as determined by battery selected. If no battery selected, factory spaces battery trays 8RU apart.

Cable size for each tray is 2AWG for optional battery disconnect circuit breakers selected up to 150A and 1/0AWG for circuit breakers selected over 150A or if circuit breakers are not selected.

Ordering Notes

- 1) Order quantity of battery trays up to the maximum quantity that can be accommodated in the relay rack per the common equipment selected, as required.
- Order batteries separately. See Batteries in the ACCESSORY DESCRIPTIONS section. Battery cables and lugs factory provided and connected.
- If optional front battery covers are desired, order per Optional Front Battery Covers in the ACCESSORY DESCRIPTIONS section.
- 4) If an optional battery disconnect circuit breaker is desired, order per *Optional Battery Disconnect Circuit Breaker Kits* in the ACCESSORY DESCRIPTIONS section.



<u>Home</u>

ACCESSORY DESCRIPTIONS

Batteries

19" Battery Shelf

Manufacturer*	Manufacturer P/N	Vertiv P/N (12V Module)	Capacity (A-Hr)	Dimension W x L x H (Inches) (per 12V Module)	Min Tray Spacing (RU)	Weight (lb) (per 12V Module)	Lug Kit 2AWG	Lug Kit 1/0AWG
Deka	12AVR100ET	241270905	96	4.33 x 20.13 x 9.38	6	75	528234	528235
Douglas	DSN12-100F		100	4.24 x 15.59 x 11.30	7	77.7	528234	528235
Douglas	DSN12-90F		88	4.24 x 15.59 x 10.04	7	70.6	528234	528235
Enersys	12V92F	122005	92	4.10 x 16.40 x 10.10	7	61.7	528234	528235
Enersys	12VE115F		101	4.33 x 20.10 x 9.25	6	80.5	528234	528235
Enersys	SBS 100F		100	4.30 x 15.60 x 11.30	7	71.9	528234	528235
Enersys	SBS C11F		91	4.10 x 16.40 x 10.10	7	61.6	528234	528235
Enersys	12V125F	122009	125	4.10 x 22.10 x 12.40	8	124	528234	528235
FIAMM	12UMTX100/19FT		100	4.25 x 15.55 x 10.83	7	74.8	528234	528235
GNB	M12V105FT	103715	100	4.33 x 20.12 x 9.37	6	78.8	528234	528235
GNB	M12V90FT	524858	86	4.13 x 15.55 x 10.63	7	68.2	528234	528235
Northstar	NSB100FT		100.5	4.24 x 15.59 x 11.30	7	78.5	528234	528235
Northstar	NSB12-330FT		(330W)	4.20 x 15.60 x 10.00	7	70.6	528234	528235
Northstar	NSB12-380FT		(380W)	4.20 x 15.60 x 11.30	7	78.3	528234	528235
Northstar	NSB90FT		87.8	4.24 x 15.59 x 10.04	7	70.6	528234	528235

^{*} See Battery Manufacturer Information

SAG588820100 SAG588820200

Revision M, November 27, 2019

<u>Home</u>

23" Battery Shelf

Manufacturer*	Manufacturer P/N	P/N (12 V Module)	Capacity (A-Hr)	Dimension W x L x H (Inches) (per 12 V Module)	Min Tray Spacing (RU)	Weight (lb) (per 12V Module)	Lug Kit 2 AWG	Lug Kit 1/0 AWG
C&D	TEL12-160F	140456	157	5.0 x 22.0 x 11.10	7	116.8	528236	528237
C&D	TEL12-180F		181	5.0 x 22.0 x 12.60	8	132.3	528236	528237
C&D	TEL12-210F	554579	202	5.0 x 22.0 x 12.60	8	132.3	528236	528237
Deka	12AVR-150ET	122018	150	4.90 x 22.00 x 11.75	8	115	528234	528235
Deka	12AVR-170ET	541381	170	4.90 x 22.0 x 12.60	8	120	528234	528235
Deka	HT170ET		164	4.93 x 22.17 x 12.58	8	118	528234	528235
Enersys	12V155FS	122010	155	4.90 x 22.10 x 11.10	7	106.9	528234	528235
Enersys	12V170FS		170	4.90 x 22.10 x 11.10	7	112	528234	528235
Enersys	SBS 170F		170	4.92 x 22.10 x 11.10	7	116	528234	528235
Enersys	SBS 190F		190	4.90 x 22.10 x 12.40	8	132	528234	528235
FIAMM	12FAT100		100	4.96 x 21.97 x 9.06	6	95	528234	528235
FIAMM	12FAT155		155	4.96 x 21.97 x 12.64	8	129	528234	528235
FIAMM	12FAT180		100	4.96 x 21.97 x 12.64	8	134	528234	528235
FIAMM	12FAT181		180	4.96 x 21.97 x 12.64	8	130	528234	528235
Northstar	NSB155FT RED		155	4.90 x 22.0 x 11.00	7	101	528234	528235
Northstar	NSB170FT RED	126111	170	4.90 x 22.00 x 12.60	8	116	528234	528235
Northstar	NSB190FT RED		190	4.90 x 22.00 x 12.60	8	123	528234	528235
Northstar	NSB155FT HT		154	4.90 x 22.00 x 11.0	7	117	528234	528235
Northstar	NSB170FT HT		174	4.90 x 22.00 x 12.60	8	121	528234	528235
Northstar	NSB190FT HT	-	190	4.90 x 22.00 x 12.60	8	132	528234	528235
GS Yuasa	PYL12V160FT		160	4.90 x 21.90 x 11.0	7	116.2	528234	528235
GS Yuasa	PYL12V185FT		185	4.90 x 21.90 x 12.50	7	133.8	528234	528235

^{*} See Battery Manufacturer Information

<u>Home</u>

Optional Front Battery Cover Kits

Features

• Provides a front battery cover to the battery tray.

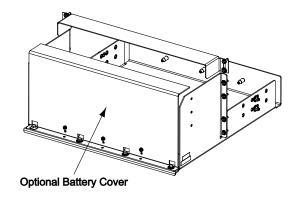
Restrictions

For 23" battery trays only.

Ordering Notes

1) Order one (1) kit per tray, as required, from the following table.

Part Number	Height
562128	8U
562053	7U
562145	6U



Home

Optional Battery Disconnect Circuit Breaker Kits

Features

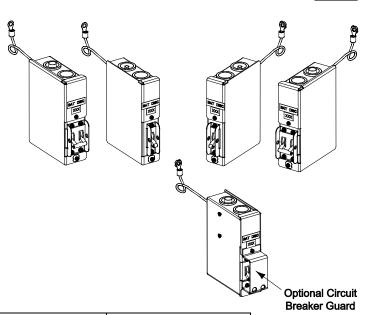
Provides a battery disconnect circuit breaker housing mounted on the left or right side of the battery tray. Selected circuit breaker factory installed and wired.

Restrictions

Factory wires Battery Rack System with 2AWG cables for battery disconnect circuit breakers selected up to 150A and 1/0AWG cables for circuit breakers selected over 150A.

Ordering Notes

Order one (1) kit per tray, as required, from the following table. Also order an optional circuit breaker guard per circuit breaker if desired.



Part Number	Description	Circuit Breaker Guard
559813	Single Pole, Right Side Mounted	nat available
559814	Single Pole, Left Side Mounted	not available
559815	Double Pole, Right Side Mounted	548014
559816	Double Pole, Left Side Mounted	

Order one (1) circuit breaker per tray from the following table.

Ampere Rating	· Flectrical/Mechanical Trin'			
30	256693100			
35	256693500			
40	256693900			
50	256694300	1-Pole		
60	256694700	I-Pole		
70	256695100			
75	256695500			
100	256695900			
125	100765			
150	100763	2-Pole		
200	121810			

Circuit Breaker Alarm Operation:

¹Provides an alarm during an electrical or manual trip condition.

System Application Guide Spec. No. 588820100 (Model 48BA1200-19) Revision M, November 27, 2019 Spec. No. 588820200 (Model 48BA1200-23)

SPECIFICATIONS



- 1.1 Environmental Ratings
 - 1.1.1 Operating Ambient Temperature Range: 0°C to +40°C (+32°F to +104°F).
 - 1.1.2 Storage Ambient Temperature Range: -40°C to +85°C (-40°F to +185°F).
 - 1.1.3 Humidity: This system is capable of operating in an ambient relative humidity range of 0% to 95%, non-condensing.
 - 1.1.4 Altitude:
 - (A) Operating: -200 feet (-61 meters) to 10,000 feet (3048 meters). Derate operating ambient temperature range by 2°C per 1000 feet (305 meters) above 5000 feet (1524 meters).
 - (B) Storage and Transportation: -1,000 feet (-305 meters) to 50,000 feet (15,241 meters).
 - 1.1.5 Mounting: This equipment is intended only for installation in a Restricted Access Location on or above a noncombustible surface.
 - 1.1.6 Aisle Space Clearance: Recommended minimum aisle space clearance is 2'6" for the front of the Battery Rack System and 4" for the rear of the Battery Rack System.
- 1.2 Compliance Information
 - 1.2.1 Safety Compliance: This power board is UL Listed as a DC Power Distribution Center for Communications Equipment. This unit meets the requirements of CSA 22.2, No. 225 and is tested and Certified by UL ("c UL") as a Custom Built Power Distribution Center for Communications Equipment.
 - 1.2.2 Seismic Compliance: NEBS Zone 4 Earthquake compliant when equipped with four (4) or fewer battery trays.

MECHANICAL SPECIFICATIONS

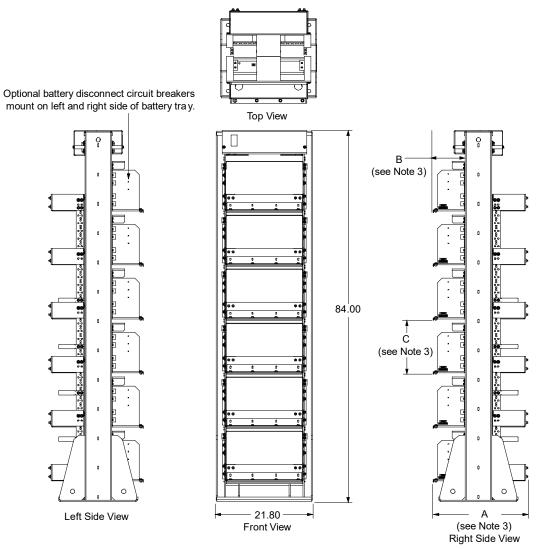
Home

Overall Dimensions – 588820100 List 1 with List 10, List 11 or List 12

- 1. Dimensions are in inches.
- 2. P/N 565381 battery tray shown, P/N 565376 similar.

•				Weigh	t (LBS)	Dimensions			
	List No.	Tray P/N	Tray Overall Dimensions	w/ Circuit Breaker Option	w/out Circuit Breaker Option	A	В	С	
	588820100 List 10	565376	19" Mounting 16.5" Deep			16.5	7.29	7RU	
	588820100 List 11	565381	19" Mounting 21" Deep			21.0	7.29	6RU	
	588820100 List 12	565384	19" Mounting 22" Deep			22.35	7.29	8RU	

- 4. Finish: Dark Gray
- 5. Maximum trays available per rack is six (6) for 6RU or 7RU, five (5) for 8RU.

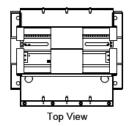


<u>Home</u>

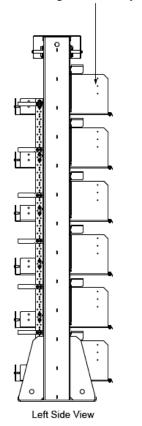
Overall Dimensions - 588820200 List 1, List 2, List 3 with List 11

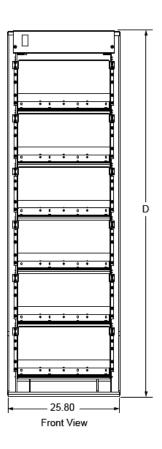
. [Weigh	t (LBS)		Dimensions	(in)
	List No.	Tray P/N	Tray Overall Dimensions	w/ Circuit Breaker Option	w/out Circuit Breaker Option	А	С	Height (Rack) D
	588820200 List 1			276.5	275		6RU,	84
	588820200 List 2	565398	23" Mounting 22.5" Deep	251.5	250	22.5	7RU, or	72
	588820200 List 3			228.5	227		8RU	60

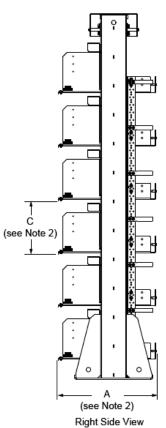
3. Finish: Dark Gray



Optional battery disconnect circuit breakers mount on left or right side of battery tray.

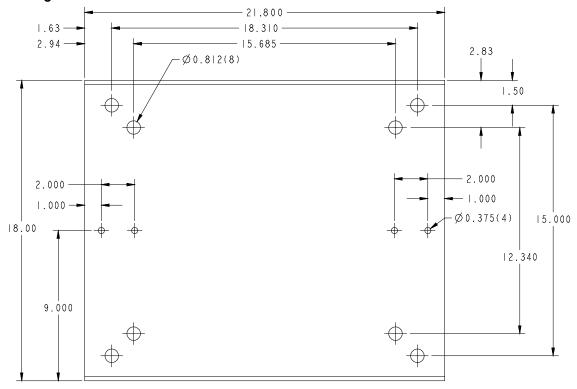




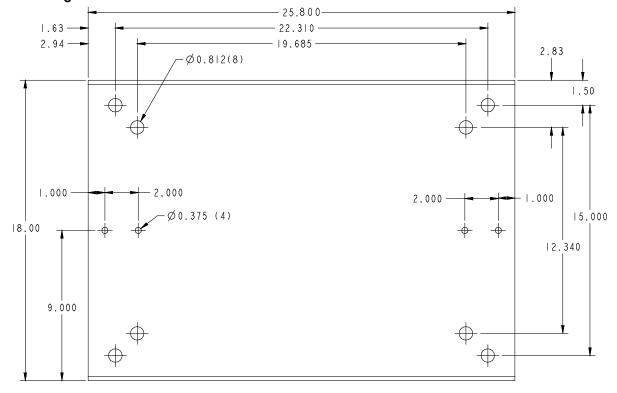


<u>Home</u>

Floor Mounting Dimensions - 588820100



Floor Mounting Dimensions - 588820200



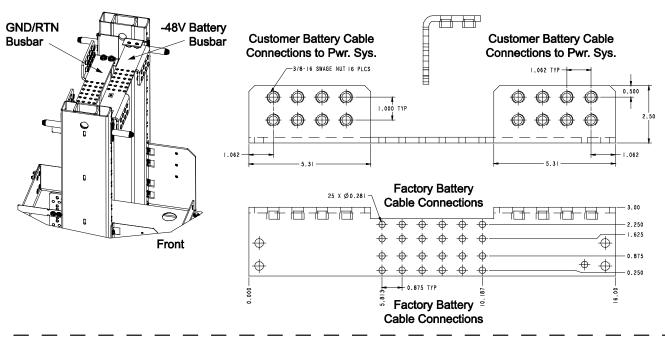
<u>Home</u>

Battery Lug Landing Dimensions - 588820100 and 588820200 588820100

Top of Relay Rack

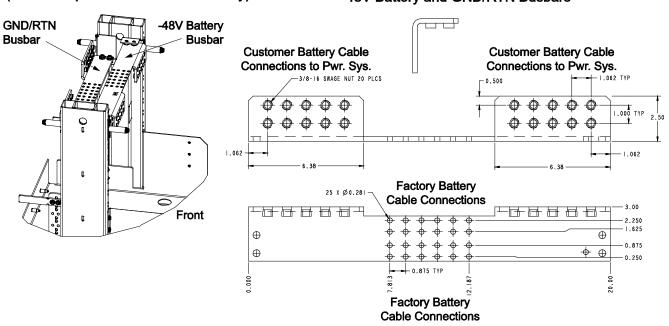
(some components removed for clarity)

-48V Battery and GND/RTN Busbars



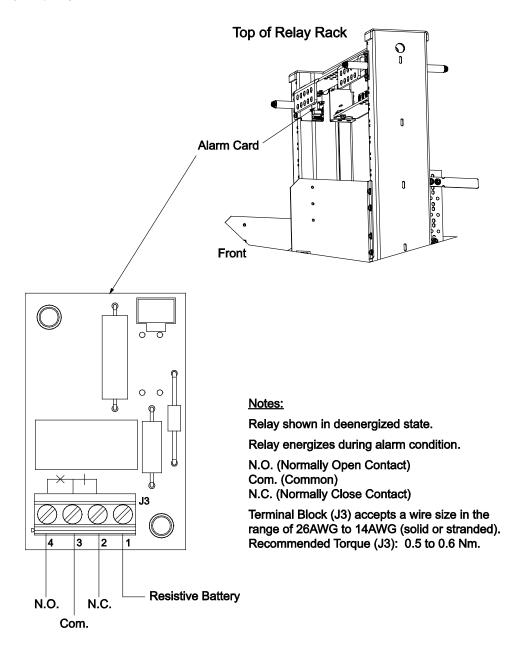
588820200 Top of Relay Rack (some components removed for clarity)

-48V Battery and GND/RTN Busbars



<u>Home</u>

Circuit Breaker Alarms



BATTERY MANUFACTURER INFORMATION



The Battery Rack Systems described in this System Application Guide are designed to accommodate batteries from various manufacturers. The following are referenced in this document.

C&D: C&D Technologies, Inc., Powercom Div., 1400 Union Meeting Road, Blue Bell, PA 19422-0858

Deka*: East Penn Mfg. Co., Inc., Lyon Station, PA 19536-0147

Douglas*: Douglas Battery Mfg. Co., 500 Battery Dr., Winston-Salem, NC 27117-2159 **Fiamm:** FIAMM T.I, 23880 Industrial Park Drive, Farmington Hills, Detroit, MI 48335

GNB Marathon™: GNB Industrial Power, a Division of Exide Technologies, Princeton, NJ 08543

Northstar: NorthStar Battery Co. LLC, 4000 Continental Way, Springfield, MO 65803

PowerSafe EnersysTM: EnerSys Inc., Reading, PA, 196212-4145

RELATED DOCUMENTATION

Schematic Diagram: SD588820100/SD588820200 **Wiring Diagram:** T588820100/T588820200

Instructions: Section 6045

Spec. No. 588820200 (Model 48BA1200-23)

Revision M, November 27, 2019

REVISION RECORD

<u>Home</u>

Revision	Change Number (ECO)	Description of Change	Date	Approved
AA	LLP213933	New	9/8/2010	John Jasko
АВ	LLP214943	Temp. rating revised. NEBS statement removed. Optional circuit breaker guard added. Optional front battery covers added.	2/3/2011	John Jasko
AC	LLP215895	Added battery tray P/N 548219 as 588820100		Shanon Ravacio
AD	LLP217617	Additional battery part number added to battery table.	09/18/2012	John Jasko
Е	LLP221163	Battery P/N for 12AVR100ET corrected in 19" battery shelf table.	11/12/2014	John Jasko
F	LLP222957	Battery tray dimension corrected for 588820200.	05/05/2016	John Jasko
G	LLP223817	Rebranded Vertiv.	04/25/2017	John Jasko
Н	LLP224142	Added 588820200 List 02 and 588820200 List 03 options.	07/28/2017	Mitch Emata
J	LLP224352	Document converted to latest Vertiv format.	09/27/2017	John Jasko
К	LLP225243	Updated 23" Battery Chart Lug Kit list for the TEL12-160F and TEL12-180F	09/12/2018	Mark Jamisola
L	LLP225679	Added six- and five-foot relay racks to the 588820200 battery rack system.	03/18/2019	Mitch Emata
M	CO-1003782	Modified the 23" Battery Shelf table.	11/27/2019	Mitch Emata

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