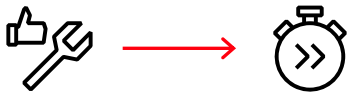
POWER PANELBOARDS

ReliaGear® neXT

Plug in and break out

ReliaGear neXT advantages

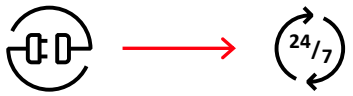
Take power panel innovation to the neXT level



Easy Installation

Modular, flexible, fast

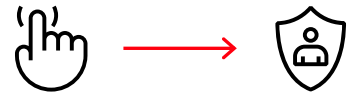
- Field-reversible bus stack
- Field-swappable ground and neutral locations
- Plug-in, single-tool simplicity



Outstanding Reliability

Connections you can depend on

- Spring-loaded circuit breaker plug-in connectors with thicker plating for durability
- Levering features reduce installation and removal force
- Magnetic forces generated by a short circuit make an even tighter connection



Enhanced Safety

The next level of protection

- Improved finger-safe bus stack that meets IP20 standards
- Locking dead front doors to eliminate the risk of unauthorized breaker use

Take versatility to the neXT level with ReliaGear neXT

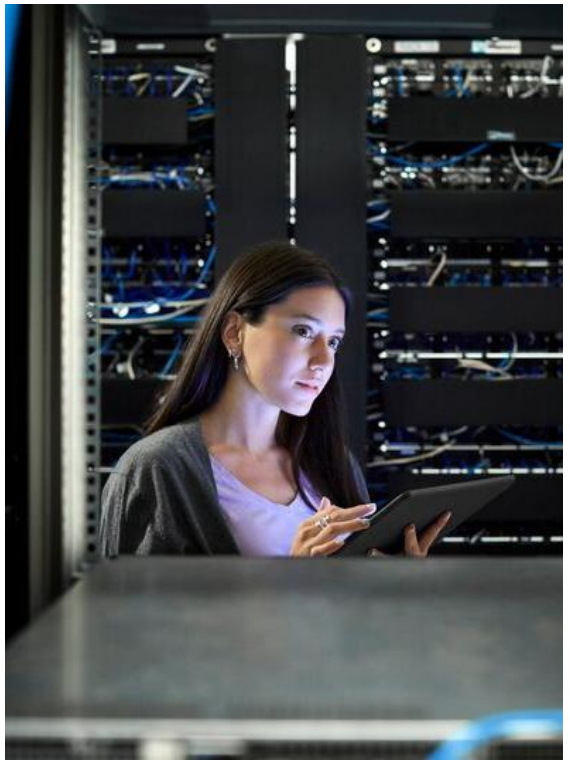
Key Applications

Residential buildings

Commercial buildings

Industrial complexes

Data Centers



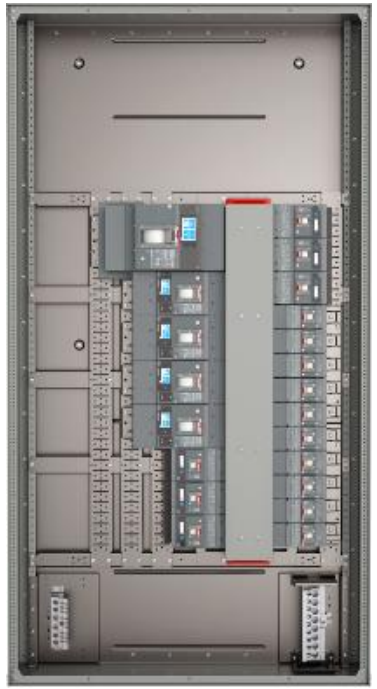
ReliaGear neXT

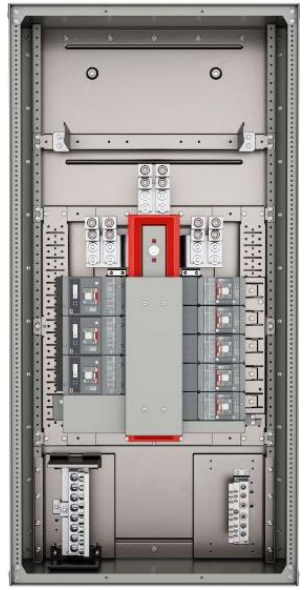
Specifications

- 3P3W & 3P4W – 600V, 480V, 240V, 600/347V, 480/277V, 208/120V
- 2 wire DC rating 125 VDC & 250 VDC @ 50kAIC
- 1P3W 120/240V
- Fully rated 200KAIC at 240Vac, 200KAIC at 480Vac, 100kA at 600Vac
- Main circuit breakers and switches: up to 1200A; horizontal or vertical
- Main lugs: 250A–1200A
- Plug-in branch circuit breakers: 15–1200A
- Enclosures: NEMA Type 1, 2, 3R, 4/4X, 12

Standards and approvals

- ANSI/NEMA PB 1, panelboards
- ANSI/NFPA 70, National Electrical Code
- UL 489, molded-case circuit breakers and circuit-breaker enclosures
- UL 50, enclosures for electrical equipment
- UL 67, panelboards
- UL 98, enclosed and dead front switches
- cUL listing for low voltage power panels
- Seismic certification according to ICC-ES AC156





Plug in and break out

Molded case circuit-breakers

Record Plus FB

True 1p-2p offering for high level performances

At a glance:
- 100A frame up to 600V
- Thermal magnetic trip unit
- Max interrupting rating 150kA 480V

TEY

True 1p-2p offering for standard applications

At a glance:
- 125A 2p frame up to 480/277V
- 70A 1p frame up to 480/277V
- Thermal magnetic trip unit
- Max interrupting rating 65kA 480/277V

Formula A2

True 2p offering for commercial and residential applications

At a glance:
- 250A frame up to 240V
- Thermal magnetic trip unit
- Max interrupting rating 25kA 240V

XT1

Small, reliable, versatile.
Your dependable partner for all standard applications

At a glance:
- 125A frame up to 600/347V
- Thermal magnetic trip unit
- Max interrupting rating 65kA at 480V & 50kA at 250V DC

XT2

Compact yet powerful. It fits everywhere and is able to deal with all complex task

At a glance:
- 125A frame up to 600V
- Thermal magnetic, basic and advanced electronic trip units
- Max interrupting rating 200kA at 480V & 50kA at 250V DC

1. 100% rated XT7 1000A requires conductors that are sized based on 75C with an insulation rating of 90C

Plug in and break out

Molded case circuit-breakers

XT4

Capable of supporting both simple and extremely complex operations

At a glance:

- 250A frame up to 600V
- Thermal magnetic, basic and advanced electronic trip units
- Max interrupting rating 200kA at 480V & 50kA at 250V DC
- 100% rated up to 200A

XT5

Compact, powerful and flexible. Shows the world what a circuit breaker of the future can do

At a glance:

- 600A frame up to 600V
- Thermal magnetic, basic and advanced electronic trip units
- Max interrupting rating 200kA at 480V & 50kA at 250V DC
- 100% rated up to 400A

XT6

Built to last. It completes all assignments it has been entrusted with

At a glance:

- 800A frame up to 600V
- Thermal magnetic and basic electronic trip units
- Max interrupting rating 65kA at 480V & 50kA at 250V DC

XT7

The ultimate choice. Deals with heavy-duty demands effortlessly

At a glance:

- 1200A frame up to 600V
- Basic and advanced electronic trip units
- Max interrupting rating 100kA 480V
- 100% rated up to 1200A[1]

1. 100% rated XT7 1000/1200A requires conductors that are sized based on 75C with an insulation rating of 90C

Plug in and break out

Compact circuit breakers that enable higher power density

Each circuit breaker frame has specific requirements for the number of mounting positions (X-spaces/1.385”). Thanks to the optimized dimensions of the XT1, the mounting positions required are lower when two or five breakers are mounted close to one another.

Frame	Max. ampacity (A)	Poles	X-spaces
Single XT1	125	3	3
Two XT1	125	3	5
Five XT1	125	3	11
XT2	125	3	3
XT4	250	3	3
XT5	600	3	4
XT6	800	3	6
XT7	1200	3	6
FB / TEY	100 / 70	1	1
FB / TEY	100 / 125	2	2
A2	250	2	2

3 X-spaces

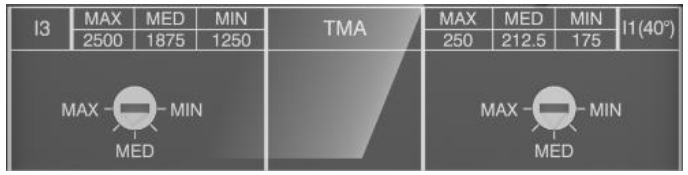
5 X-spaces

11 X-spaces

- 16% space saving with two XT1
- 26% space saving with five XT1

Tmax XT trip unit

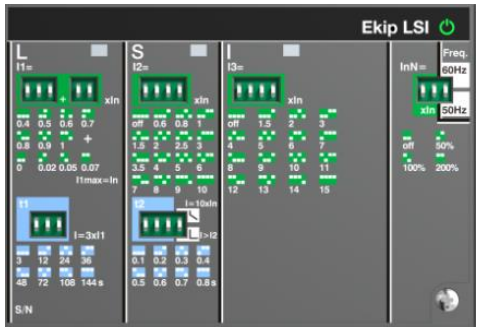
Thermo-Mag trip



TMF: Thermo-Mag Fixed: No Adjustments Possible

TMA: Thermo-Mag Adjustable: Adjustable Thermal (L) & Magnetic (I)

Ekip Dip



LSI: Adjustable L, S, and I

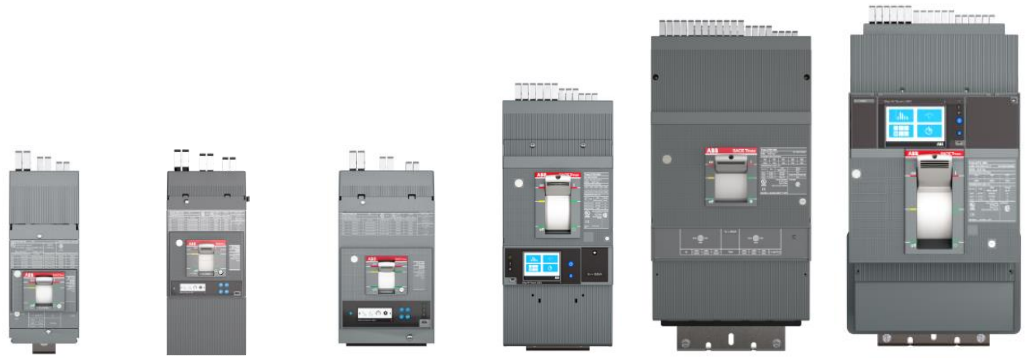
Ekip Touch/Hi-Touch

LSI: Adjustable L, S and I

LSIG: Adjustable L, S, I, and G

1. Via Dip Switch Setting, S or I protection is selected as adjustable, the protection not selected as adjustable is set to a predetermined, fixed value

Trip unit performance levels



		XT1	XT2	XT4	XT5	XT6	XT7
	Thermo-Magnetic	TMF	TMF/A	TMF	TMA	TMA	-
	Ekip Dip	-	LSI	LSI	LSI	LSI	LSI
	Ekip Touch	-	LSI - LSIG	LSI - LSIG	LSI - LSIG	-	LSI - LSIG
	Ekip Hi-Touch	-	LSI - LSIG	LSI - LSIG	LSI - LSIG	-	LSI - LSIG

Standard Protection

Two types of Thermo-Magnetic trip units:
- TMF: Thermo-Mag Fixed
- TMA: Thermo-Mag Adjustable

Standard Protection

Standard Protection **Advanced Protection** **Connectivity & Communication**

Upgradable with measurement and advanced functions

Standard Protection **Advanced Protection** **Connectivity & Communication** **Measurements** **Embedded Advanced Functions**

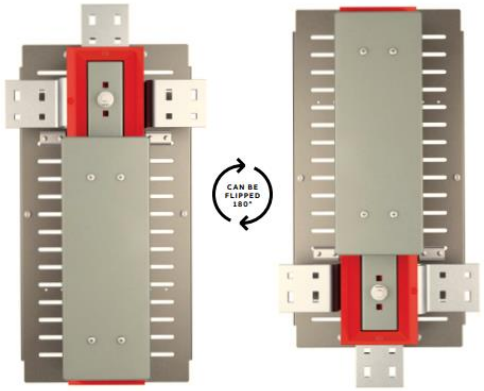
1. For the single-phase offering, the following trip units are available: XT1, XT2, XT4, XT5, XT6 – TM thermal-magnetic trip unit. XT7 – Ekip DIP electronic trip unit and Ekip Touch/Hi-Touch electronic trip units

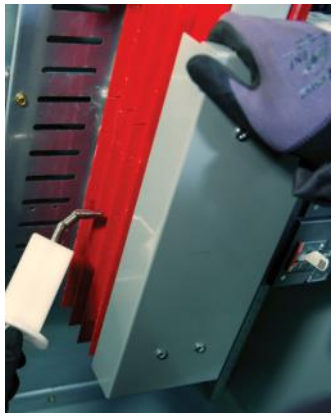
Superior plug-in breaker connections

- No more bolted joints that can become loose or require torque checks
- neXT breaker assemblies make it easy to add to existing installations
  - neXT only requires one, preassembled, plug-in breaker kit and two retaining bolts
  - equivalent bolt-on panels require up to twenty parts for mounting
- Uses the magnetic force generated by a short circuit to make the connection even tighter and more reliable
- Levering features further reduce installation and removal force

A better bus stack design

- Ratings from 250A up to 1200A
- Optimized bus stack dimensions to reach the highest power density and number of circuits (16X, 24X, 32X, 40X)
- Easy and safe installation with built-in alignment
- Field-reversible bus stack that can be flipped 180 degrees to accommodate top or bottom feeds without extra parts
- Built-in IP20 finger safe features for enhanced safety
- Copper and Aluminum, heat or density rated, silver or tin plated

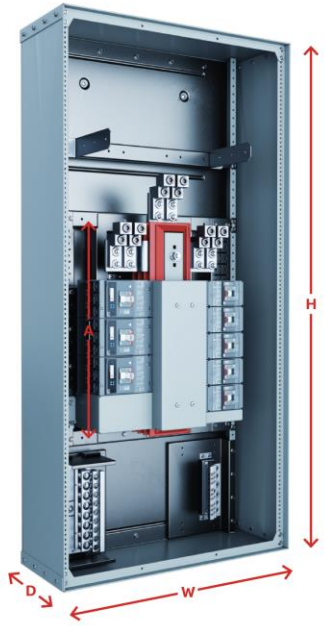




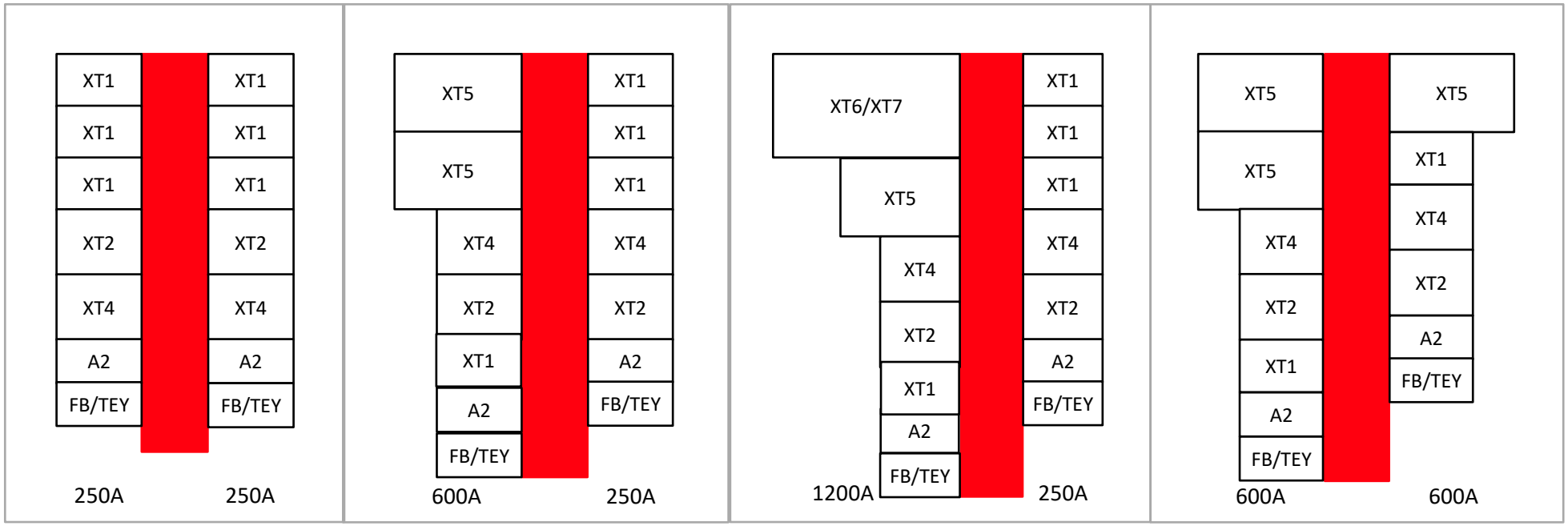
Lug options

- Mechanical lugs from 250 kcmil up to 750 kcmil
- Compression lugs from 1/0 up to 750 kcmil
- Sub-feed (dual main) lug and feed-through lug options are also available to address instances where a panelboard requires more than one enclosure

Panelboard dimensions and configurations



H	60"	72"	84"	96"
A	16X	24X	32X	40X
W		30"	40"	45"
D				11" NEMA 1 11" NEMA 1 + DiD/Drip hood(1) 11" NEMA 2(1) 14.5" NEMA 3R(2) 14.8" NEMA 4/4X/12(2)

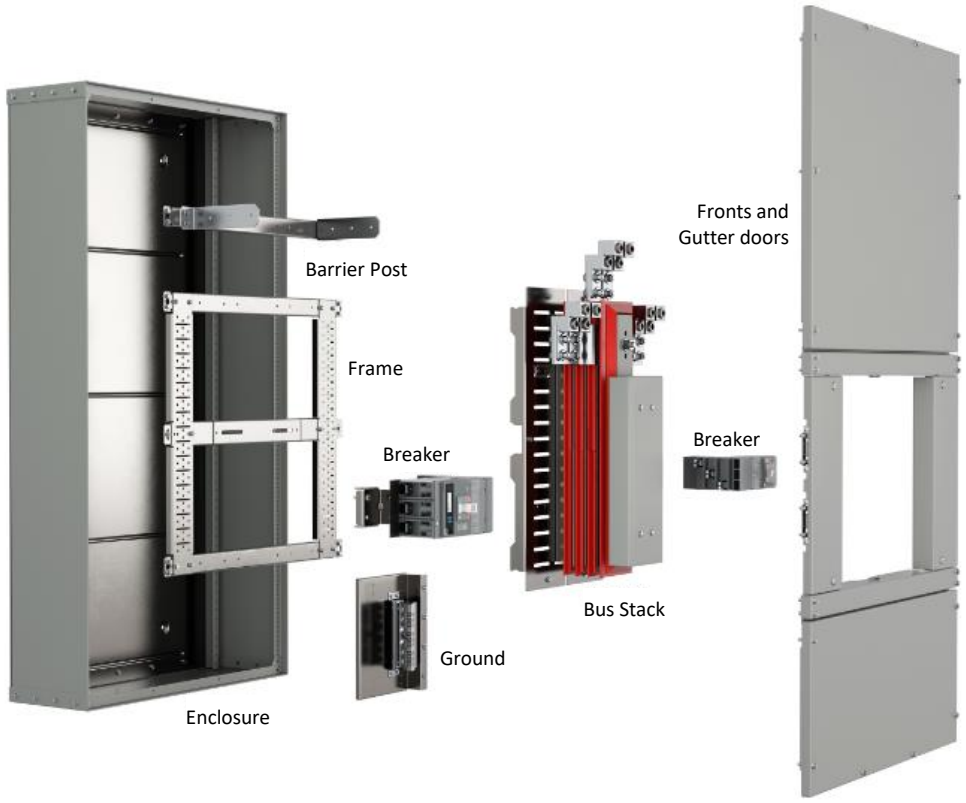


30" center box | 40" offset box | 45" offset box | 45" center box

(1) Door In door and Drip hood increase the total dept to 14.5" but the usable conduit space remains 11"
(2) Depth for NEMA 3R/4/4X/12 does not include 0.9“ of hanger bracket.

Install components in seconds

- Modular, easy and fast
  - Bus assembly in less than 3 minutes
  - Circuit breaker installation in less than 20 seconds
- Mix-and-match modularity allows installation of non-similar circuit breakers frames across from each other
- Circuit breakers can be installed anywhere on the bus stack
- Sub-assembly construction for quick ordering of specific parts
- Ground and neutral locations are field-swappable



Take versatility to the neXT level with ReliaGear neXT options

Door offering

Standard offering

Optional locking doors

Door-in-Door

Exterior view

Breakers access

Interior access

Panelboard accessories

Neutrals

- Isolated neutral
- Bonding kit always provided
- Lugs size: 1/0 to 750MCM
- Ground fault option (main CB)
- 200% Neutrals

Grounds

- Bonded or isolated
- 10 or 47 wires

Service Entrance kits

Dedicated per frame

- XT1, 2/0 AWG
- XT2, 2/0 AWG
- XT4, 300MCM or 350MCM
- XT5, 500MCM
- XT6, 400MCM
- XT7, 500MCM and 750MCM

Single point metering

- Plug in module
- Revenue grade, V, A, E, P measuring
- Modbus RTU or BACnet, Datalogging
- 40” or 45” wide panels

Surge Protection Devices

- Plug in module
- Type 1 or Type 2
- Impulse current from 65kA to 300kA
- 40” or 45” wide panels

RELT

- Plug in module to mitigate arc flash hazard
- Touch trip unit required
- Compulsory by NEC for 1200A breaker (XT7)
- 40” or 45” wide panels

Panelboard accessories

ReliaGear RGM40 Power Quality Meter

- 0.2% class revenue certifiable energy and demand metering
  - Meets ANSI C12.20 0.2 CL and IEC 62053-22 0.2S classes
- Multifunction measurement including voltage, current, power, frequency, energy, etc.
- Communication options: Modbus RTU, Modbus TCP/IP and BACnet.
- Waveform recording up to 512 samples/cycle
- Harmonic analysis up to 40th order
- Stores up to 2048 power quality event logs
- USB port for laptop connection
- LED display for high visibility

One of the smallest energy and power quality meters in the world!

Panelboard accessories

Revenue Grade Submetering

Revenue grade submetering unit

The ReliaGear neXT submetering plug-in module combines the meters, current transformers, communications and overload protection into a single module that mounts inside a UL Listed factory-assembled panel. This solution can reliably allocate energy usage for commercial, industrial, institutional and residential applications. Accurate energy usage allocation allows facility managers to sub-bill tenants and manage, understand and reduce operational costs while also incentivizing tenants to conserve energy and lower their monthly bill.

Offering ANSI 12.20 0.5% accuracy, the submetering module is revenue-grade and features:

- Voltage, amperage, power and energy monitoring
- Local LCD display
- Data Logging
- Communications via Modbus RTU - Versatile and widely used protocol
- Modular units that can serve up to 48 circuits to be metered
- UL 2808 XOBA rated current transformers
- California Weights and Measures Certified Certificate Number: 5876(b)-22

The submetering module is a plug-in accessory to be installed on the bus stack. This accessory can fit into 40" or 45" wide.
Refer to submetering brochure 1SQC900005B0201 for more detailed information on the offering.

Panelboard accessories

Revenue Grade Submetering

Benefits

Installer benefits

- ✓ Save valuable real estate
- ✓ Save time

Facility manager benefits

- ✓ Save money
- ✓ Get smart

Tenant benefits

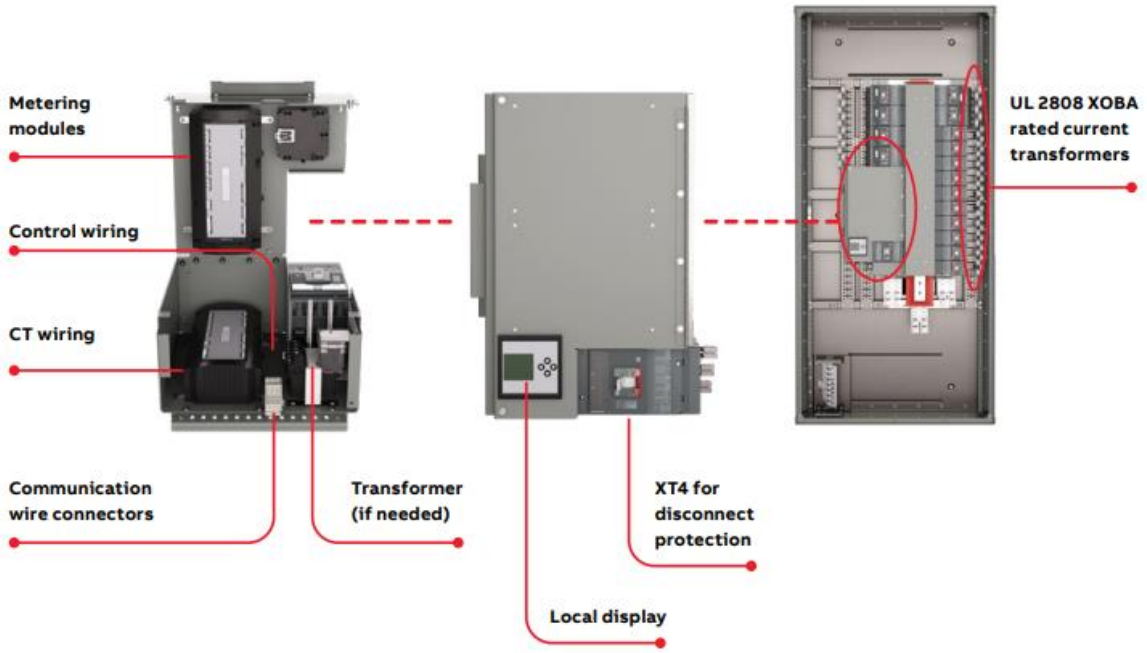
- ✓ Visibility
- ✓ Ownership

Empower selects the appropriate metering module based on:

- Number of metered breakers
- 2/3 pole breaker selection
- Voltage

Number of meters	Maximum number of 2 pole metered breakers*	Maximum number of 3 pole metered breakers	Maximum number of circuits	X-space required
1	6	4	12	9X
2	12	8	24	9X
3	18	12	36	14X
4	24	16	48	14X

*2 pole available up to 240V
All modules include display for local monitoring
1X space = 1.385"
Available in 40" and 45" wide enclosures



Circuit breaker accessories

Electronic accessories

- 7 communication protocols: Modbus RTU & TCP, Profibus, Profinet, DeviceNet, IEC61850, Ethernet/IP
- ABB Ability EDCS – Cloud connectivity through Ekip Com Hub
- Bluetooth connection for monitoring from an arc-free zone

Electrical accessories

- Opening release and undervoltage release. Different voltage levels
- Open/Close auxiliary switches and bell alarm
- Signaling module with digital inputs/outputs

Mechanical accessories

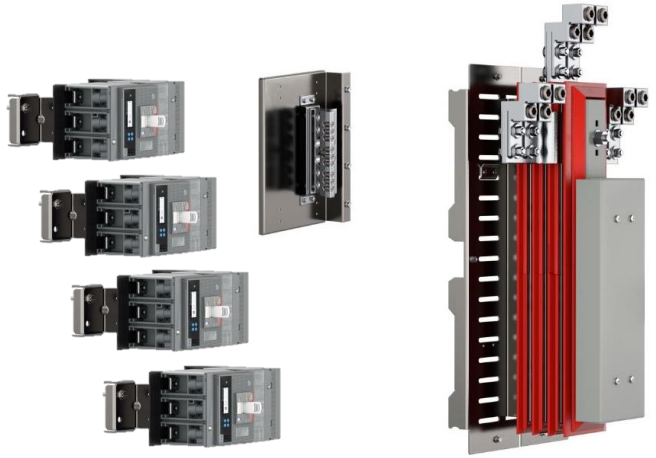
- Padlock
- Different key lock options: Kirk, Ronis, Castell. Solutions available for interlocking

ReliaGear neXT options

Delivery – Bulk pack

Pallet 1

Pallet 2



Logistics

Pallet 1: Enclosure, fronts, gutters frame and wire post

Pallet 2: Individually packaged bus, circuit breakers, ground, neutrals (and optional accessories)

Benefits

- Perfect for breakers pre-installation testing needs
- Field configurable feed direction and breaker layout
- Single person installation (*)
- Pre-assembled frame inside the box for simplified bus installation

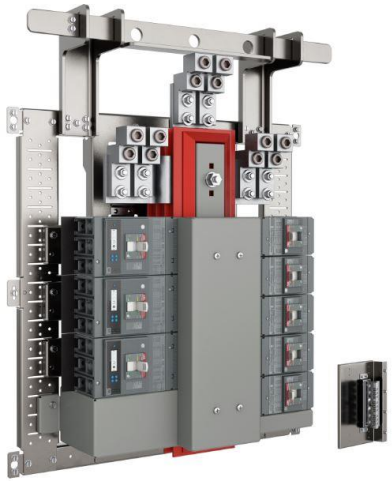
(*) up to a certain bus dimension

ReliaGear neXT options

Delivery – Assembled interior

Pallet 1

Pallet 2



Logistics

Pallet 1: Enclosure, fronts, gutters and wire post

Pallet 2: Assembled interior (bus with breakers and plug in accessories). Individually packaged ground and neutral.

Benefits

- Product arrives configured per empower submittals documentation
- Lifting bar for easy and safe handling
- Predefined mounting location inside the box
- Commonly requested for large projects with multiple panels

ReliaGear neXT options

SuperBox (Coming Soon)

1 Pallet

What's inside?

Logistics

Pallet: Enclosure, fronts, gutters, wire post, bus with breaker spaces and installed grounds and neutrals.

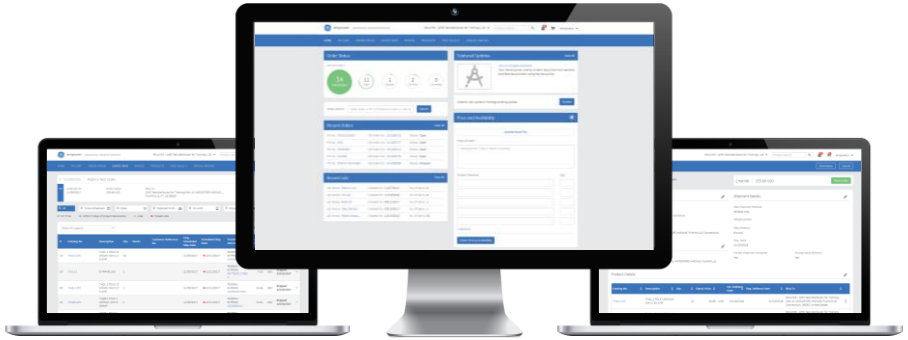
Benefits

- Single SKU for complete assembly
- Discounted prices up front
- Simplified offering to suit a variety of applications

Easy ordering. Optimized logistics.

empower
the power to do more

Our premier digital commerce platform enables our employees, partners and customers to manage all aspects of their relationship from quote and bid to order and delivery tracking



eCommerce

Find, order and track products fast

Project Management

Manage configured items, generate bills of material and more

Product Configuration

Use online configurators to build any size project

Document Generation

Generate electronic documents with ease, from configured drawings to full proposals and submittal packages

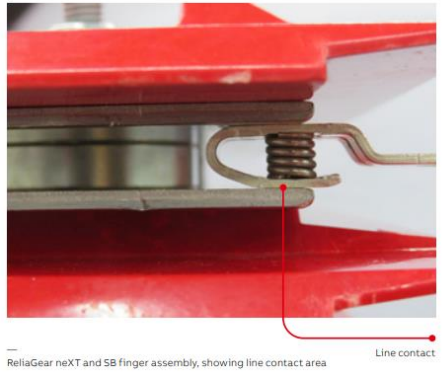
Competitive Advantages

Plug in Breaker + Bus Stack Design

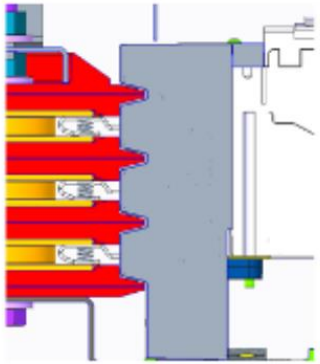
Plug in Connections

Each Breaker Frame utilized in ReliaGear neXT has a line side connector that consists of:

- plastic phasor, strap holder, and slider
- combined with Copper straps + Clip assemblies to create the plug-in connection with the bus stack interior



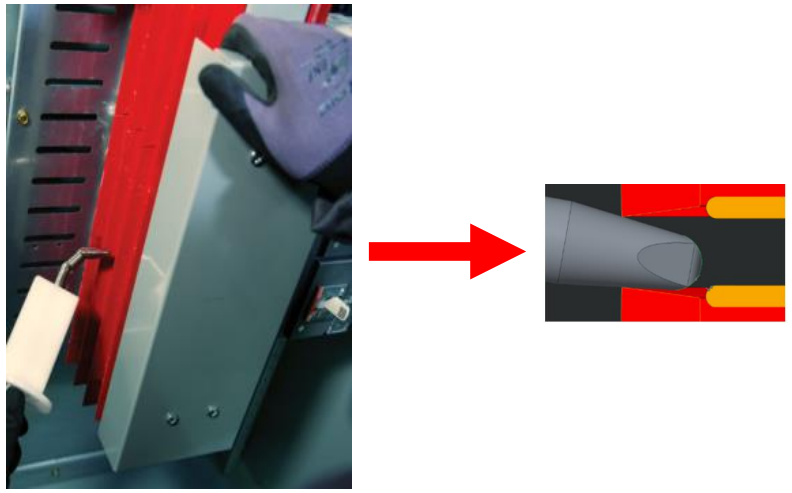
ReliaGear neXT and SB finger assembly, showing line contact area



IP20 finger safe

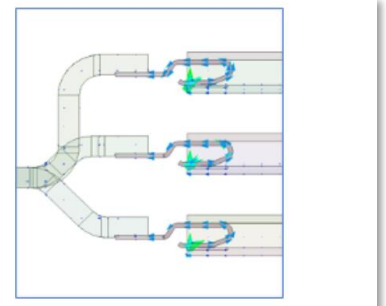
The bus stack red insulators and line side connector phasors were designed such that no contact can be made with live parts thus meeting IP20 finger safe standards

This can be paired with Service Entrance barriers that are installed on the breaker lugs – making a full IP20 panel (for horizontal main breaker panels)

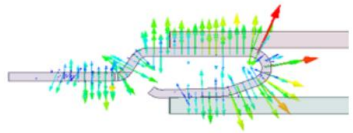


Performance

During fault currents, due to magnified electromagnetic forces, parallel current paths repel one another, a phenomena that causes bolt-on connections to loosen or blow apart. The plug-in clip uses this resistance effect to create a reverse loop. Due to this, the plug in connectors contact force actually increases



Direction of current flow in Reliagear neXT clip

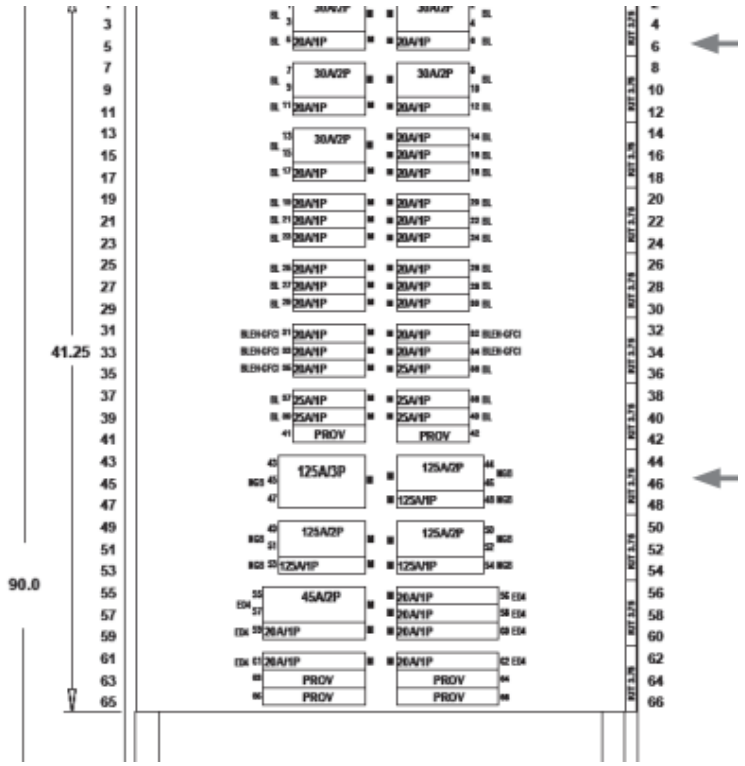


Force vector diagram showing repulsive forces within the ReliaGear neXT and SB clip impinging on the vertical bus and creating compressive force during high current / short-circuit event. Resultant compressive force creates a stronger connection than during nominal operation.

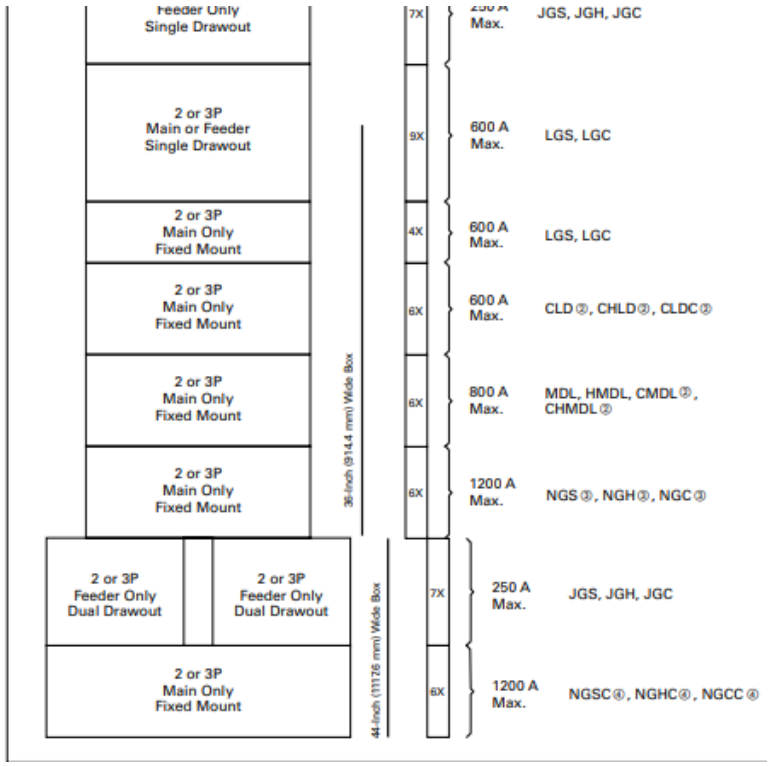
ABB vs. Eaton/Siemens

neXT vs Pow-R-line/P5

Siemens Power panel layout



Eaton Power panel layout



Strap kits

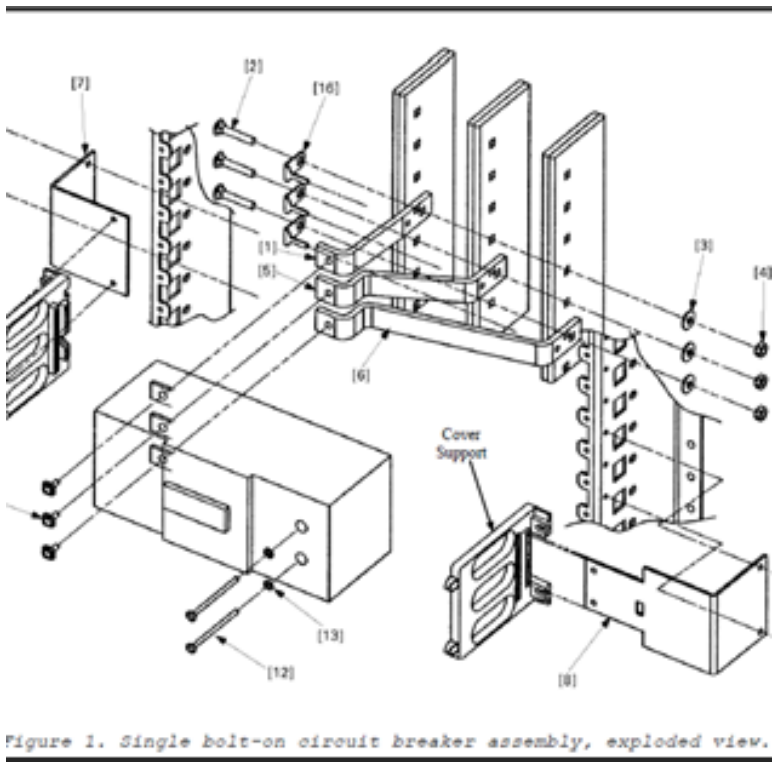


Figure 1. Single bolt-on circuit breaker assembly, exploded view.

Monterrey 2.0

Monterrey 2.0

Plant Information

- Started Operations in **2020**.
- Area 110,000 ft² (**10,220** m²)*
- Headcount **250** People.
- Products:
  - **Power Break II.**
  - **Enclosed Starters**.
  - **Reliagear Next Power Panelboard.**
  - **Reliagear Lighting Panelboards.**

* Currently assigned only 63% of total area, 70,000 ft² (6,500 m²)


ABB

Breaker lugs and X-Space

Breaker lugs

Frame	Ampacity (A)	Wire size (AWG or kcmil) Cu or Al	Number of cables per lug	Installation
XT1	125	#10-2/0	1	Horizontal
XT2	15-25	#14-1/0 (Cu)	1	Horizontal
XT2	15-125	#10-2/0	1	Horizontal
XT4	25-70	#14-1/0	1	Horizontal
XT4	80-255	#4-300, 3/0-350	1	Horizontal
XT4	250	3/0-350	1	Horizontal
XT5	600	2/0-500	2	Horizontal/vertical
XT6	800	2/0-400	3	Horizontal
XT7	1200	4/0-500	4	Horizontal/vertical
XT7	1200	500-750	2[1]/3	Horizontal/vertical
FB / TEY	15-20	#14-#10	1	Horizontal
FB / TEY	25-60	#10-#4	1	Horizontal
FB	70-100	#1-1/0	1	Horizontal
TEY	70-125	#4-2/0	1	Horizontal
A2	250	#1-250, 2/0-300	1	Horizontal
A2	250	350 (Al)	1	Horizontal

Frame	Max. ampacity (A)	Poles	X-spaces
Single XT1	125	3	3
Two XT1	125	3	5
Five XT1	125	3	11
XT2	125	3	3
XT4	250	3	3
XT5	600	3	4
XT6	800	3	6
XT7	1200	3	6
FB / TEY	100 / 70	1	1
FB / TEY	100 / 125	2	2
A2	250	2	2
SPD	-	-	10
RELT	-	-	3
Metering	-	-	4

Additional 4 X-spaces required for each set of lug pads (in case of main lugs and vertical main breaker)

1. Max. two 750 kcmil cables allowed in horizontal installation due to wire-bending space limitation

Bus Stack combinations

Possible combinations of bus stack and enclosures

Bus height	16X			24X			32X			40X		
Bus type	**NN**	**BL**	**BF**	**NN**	**BL**	**BF**	**NN**	**BL**	**BF**	**NN**	**BL**	**BF**
Enclosure height (in.)												
60	•	•		•								
72	•	•		•	•		•					
84		•		•	•	•	•	•		•		
96					•	•	•	•	•	•	•	

NN: clean bus, no lug pads

BL: 1 set of lug pads

BF: feedthrough, 2 sets of lug pads

Possible combinations of bus stack and plating type

Bus height	16X				24X-32X-40X			
Bus type	**1P-Silver**	**1P-Tin**	**3P-Silver**	**3P-Tin**	**1P-Silver**	**1P-Tin**	**3P-Silver**	**3P-Tin**
Bus amperage								
250A			•		•		•	
400A			•		•	•	•	•
600A			•		•	•	•	•
800A			•		•	•	•	•
1000A			•		•		•	
1200A			•		•	•	•	•

1P-Silver: Single Phase Silver plating

1P-Tin: Single Phase Tin plating

3P-Silver: Three Phase Silver plating

3P-Tin: Three Phase Tin plating