



CATALOG

ReliaGear[®] neXT

UL 67 low-voltage distribution
power panelboards



In our ongoing commitment to offer superior value at every touchpoint, from ordering to installation to maintenance, we have combined the best technology of ABB and GE Industrial Solutions to bring you a true breakthrough in power panels.

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01

General characteristics

General characteristics

General characteristics	
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Install components in seconds. Instill confidence for a lifetime.

—
01 Improved finger-safe bus stack that meets IP20 standards in select models

—
02 Spring-loaded circuit breaker plug-in connectors

—
03 Bus stack can be flipped 180 degrees



EASY TO INSTALL

Modular, flexible, fast.

The ReliaGear neXT features a field-reversible bus stack that can be flipped 180 degrees to accommodate top or bottom feeds without extra parts. Ground and neutral locations are also field-swappable. These advantages plus plug-in, single-tool simplicity enable easy, fast component installation or replacement in the field. For even greater flexibility, circuit breakers can be installed anywhere on the bus stack.



OUTSTANDING RELIABILITY

Dependable connections.

Spring-loaded circuit breaker plug-in connectors with increased plating thickness for durability withstand repeated insertion and removal. Levering features further reduce installation and removal force. This plug-in connector design uses the magnetic forces generated by a short circuit to help make the connection even tighter and more reliable. There are fewer bolted joints that can become loose or require torque checks.



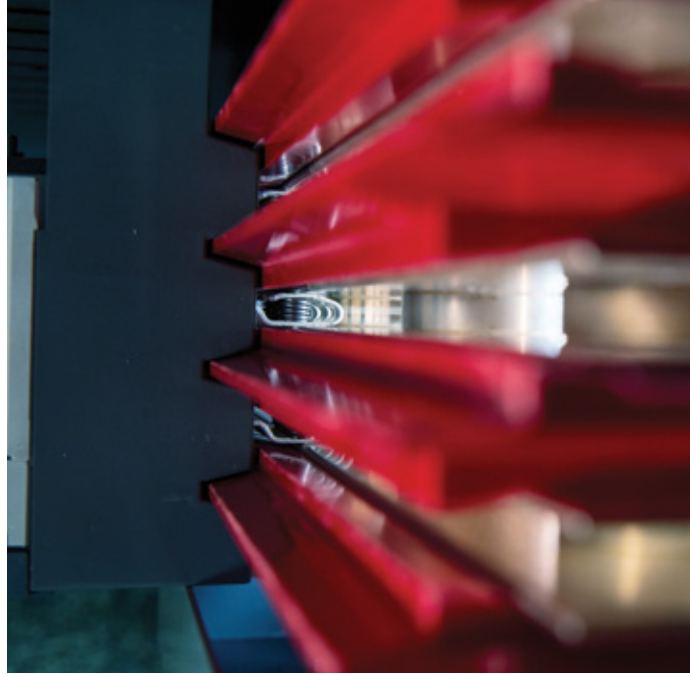
ENHANCED SAFETY FEATURES

The next level of protection.

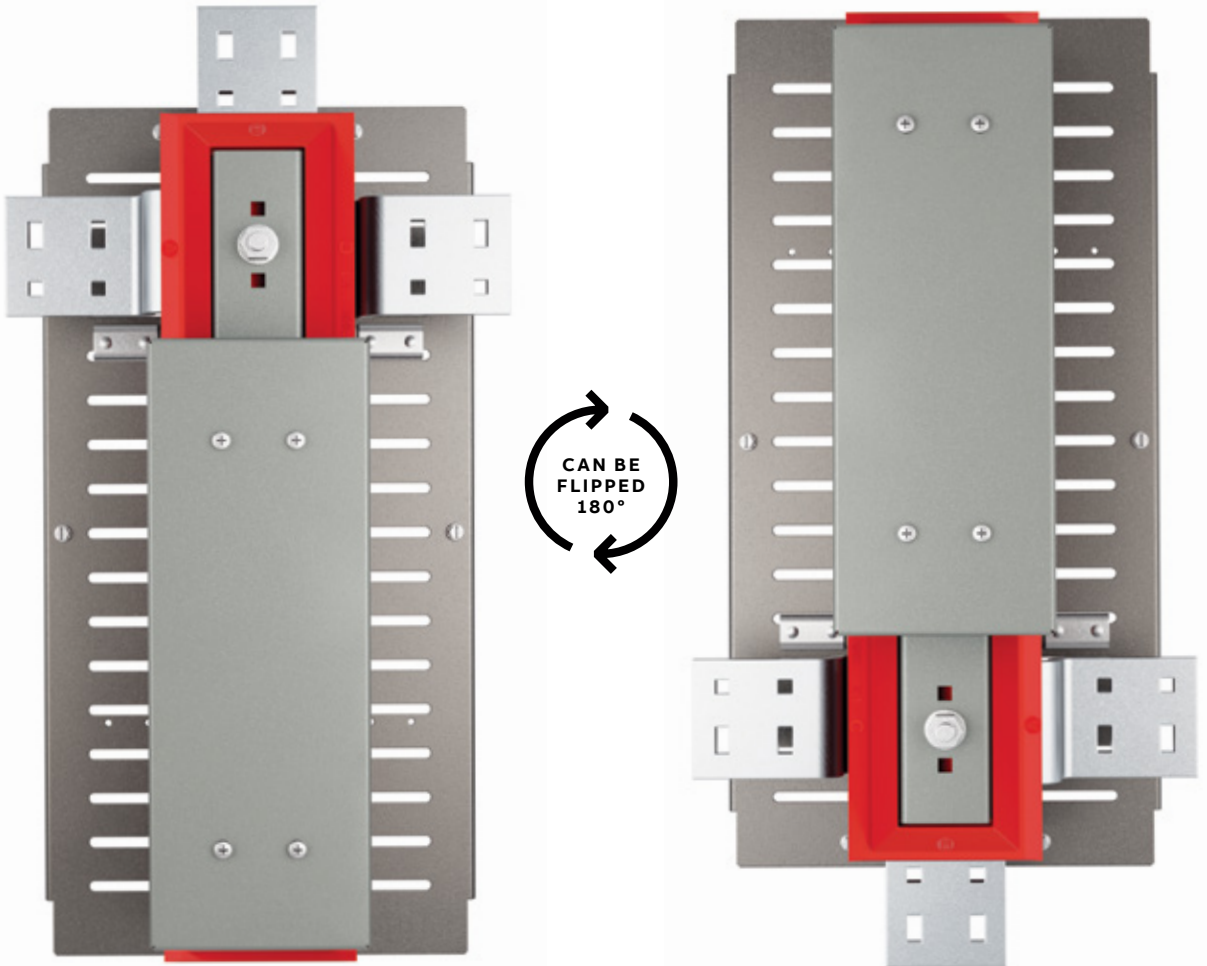
ABB is passionate about safety. From the largest piece of arc-resistant switchgear down to the smallest arc fault and ground fault sensing circuit breaker, ABB is always designing ways to help keep personnel out of harm's way. ReliaGear neXT panelboard and switchboard designs come with an improved finger-safe bus stack that meets IP20 standards. Thanks to the breaker-integrated Bluetooth® technology, it is also possible to set parameters and check measurements directly from your smartphone from an arc-free zone.



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01




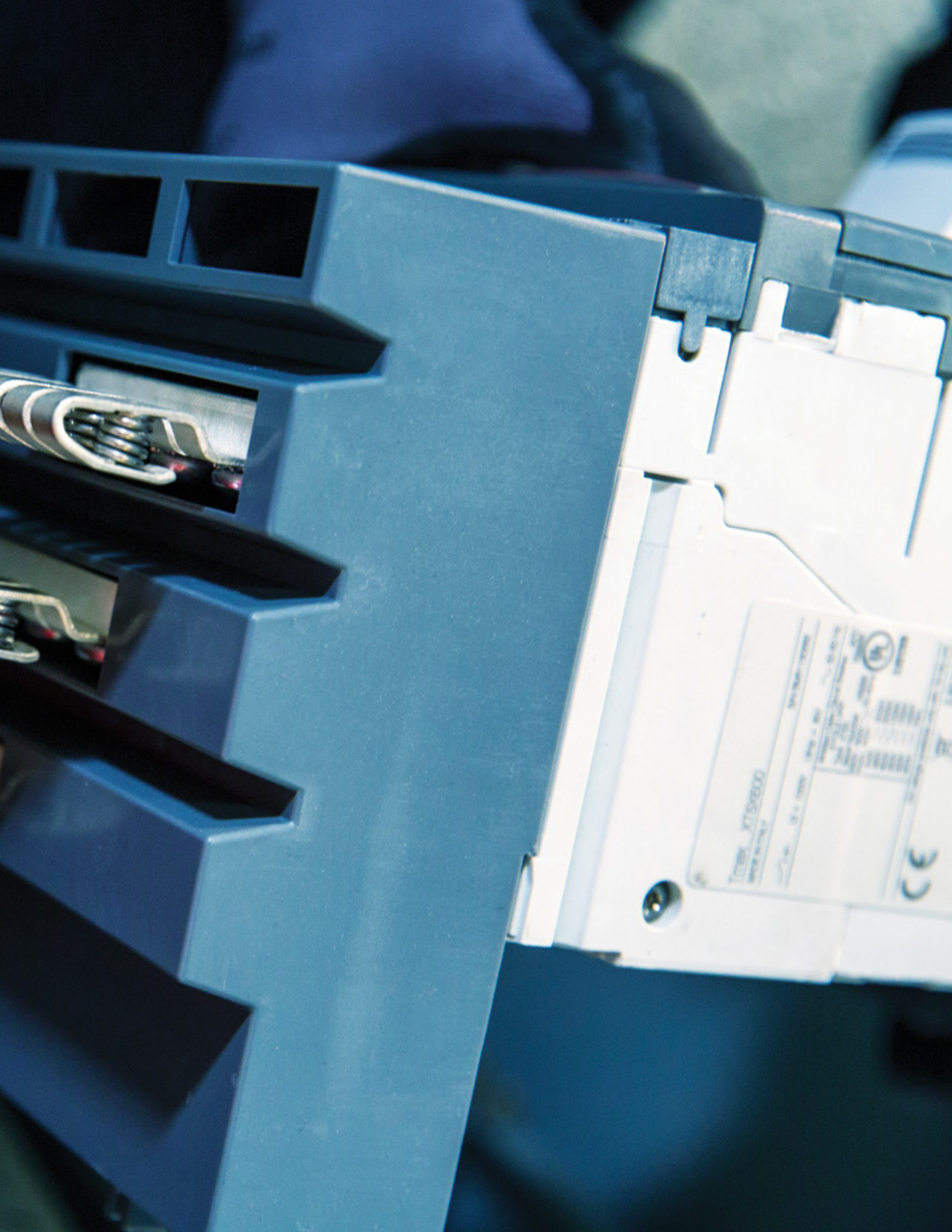
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02



—
03

Tmax[®] XT plug-in circuit breakers feature spring-loaded primary disconnects, enabling fast installation, easy replacement and reliable connection to maximize your uptime.

A close-up photograph of a Tmax XT plug-in circuit breaker. The image shows a red handle on the left, a grey metal housing in the center, and several metal contacts on the right. The background is dark and out of focus.



Model: YTS1600
MADE IN CHINA

SPECIFICATIONS	
Input Voltage	100-240V AC
Output Voltage	5V DC
Output Current	1.5A
Power	7.5W
Efficiency	> 80%
Protection	Over-current, Over-voltage, Short-circuit
Dimensions	40mm x 25mm x 15mm
Weight	10g

CE

Even more advantages.

—
01 Components can be installed in as little as 20 seconds
—

02 Remote access to accurate information anywhere, anytime



REDUCED COSTS

Speed up your project.

Reducing labor and saving time is crucial for electrical contractors. In fact, an 8% savings in labor costs for a typical large project can mean 133% more profit for the contractor.* ReliaGear neXT's intuitive single-person installation enables components to be installed in as few as 20 seconds, dramatically saving skilled-labor costs, reducing downtime and lowering the risk of mistakes.

*From "How to Make a Good Estimate Even Better" by Don Kiper, EC&M, 2017.



ADVANCED CONNECTIVITY

Link to data analysis in real time.

With ABB Ability® cloud connectivity, multiple communication options and built-in metering, the Tmax XT circuit breakers of ReliaGear neXT put facility managers in control. The extreme precision of the data measured means users have access to accurate information anywhere, anytime, making it easier to monitor resources and identify savings opportunities.



ORDERING AND LOGISTICS

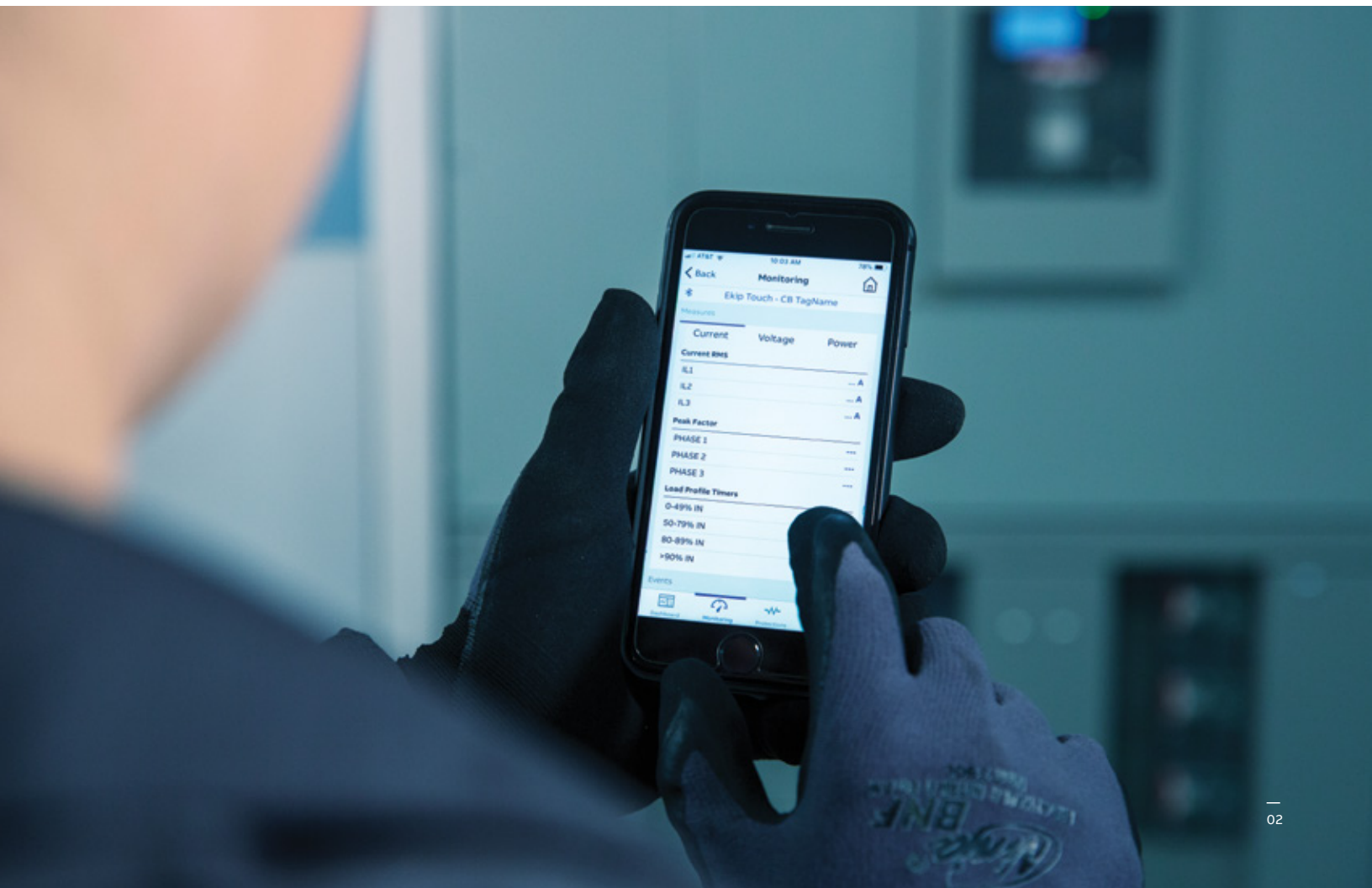
Easy to stock.

With ReliaGear neXT, you have a single catalog number for all circuit breaker installation kits, convenient ordering with the **empower** configurator tool and ProStock options for quick deliveries. Power panels are available unassembled or with factory-assembled interior.

The **empower** tool provides a new PanelScan feature in addition to customizable dashboards, templates, product configurations and more to help users save time and reduce the risk of error.



01



02

Take your performance to the neXT level.

ReliaGear neXT — a go-to power panel for professionals looking to gain the competitive edge:

Contractors

For contractors, time is money. And traditional bolt-on power panels that require highly skilled labor and take hours to install or modify in-field can cost you big. But now there's ReliaGear neXT. It works harder, so you don't have to.

Distributors

Smart, optimized, simplified design helps distributors maximize stock inventory. The user-friendly and intuitive **empower** tool minimizes the configuration process time by providing product drawings, bills of materials and technical documentation.

Consultants and engineers

ReliaGear neXT adds value to any job, giving consultants the power to influence customer specifications, helping to make life easier, providing safety features for installers and significantly reducing downtime for end users. The broad offering allows ABB to provide the right product for the right application.

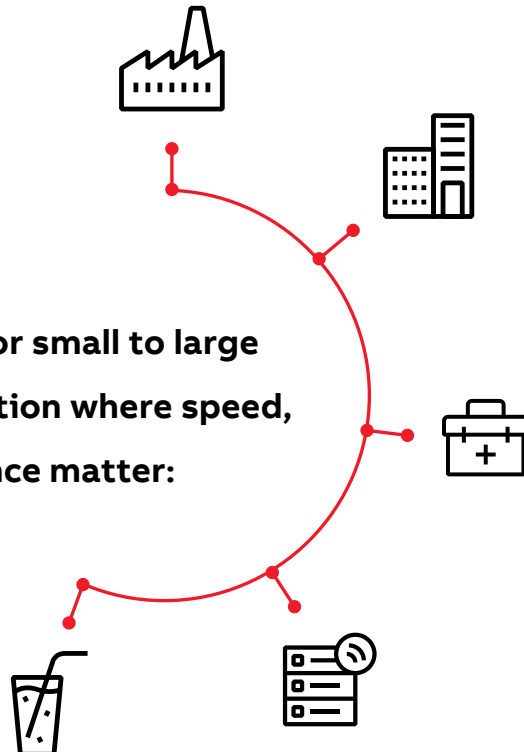
OEMs and panel builders

Versatility, easy installation and performance make ReliaGear neXT a perfect match for quality panels and any type of equipment.

Facility managers

ReliaGear neXT enables fast component installation or replacement, reducing downtime and cost. And its connectivity helps managers monitor resources and identify savings opportunities.

ReliaGear neXT is ideal for small to large projects and any application where speed, reliability and performance matter:



- Industrial complexes
- Commercial buildings
- Residential developments
- Health care facilities
- Data centers
- Food and beverage facilities
- Infrastructure projects
- And more



General characteristics

Standard and certifications

10

The low-voltage power panelboards and protection devices in this specification are designed and manufactured according to the latest revision of the following standards (unless otherwise noted):

- ANSI/NEMA PB 1, panelboards
- ANSI/NFPA 70, National Electrical Code
- Federal specification W-C-375, rev. B, amend. 1, circuit breakers, molded case; branch circuit and service
- Federal specification W-P 115, rev. C, panel, power distribution
- UL 489, molded case circuit breakers
- CSA 22.2 No. 5-13, molded case circuit breakers
- UL 50, enclosures for electrical equipment
- UL 67, panelboards
- UL 98, enclosed and dead front switches
- cUL listing low-voltage modular power panels
- Seismic certification according to ICC-ES AC156

02

Panelboard details

Panelboard details

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Panelboard details

Introduction

The ReliaGear neXT power panelboard can be equipped with circuit breakers from 15 A to 1200 A. The maximum short-circuit rating is equal to 200 kAIC at 240 V, 100 kAIC at 480 V or 65 kAIC at 600 V, or the lowest current interruption rating of any device installed, except as noted in the series rating listed with an integral or remote main breaker or fusible switch installed ahead of the power panel.

ReliaGear neXT power panelboards can be used on the following system voltages:

- 240 V AC; 3-phase, 3-wire
- 480 V AC; 3-phase, 3-wire
- 600 V AC; 3-phase, 3-wire
- 208Y/120 V AC; 3-phase, 4-wire
- 480Y/277 V AC; 3-phase, 4-wire
- 600Y/347 V AC; 3-phase, 4-wire
- 240/120 V AC Delta hi-leg; 3-phase, 4-wire
- 120/240 V AC; 1-phase, 3-wire



Panelboard details

Enclosures

The ReliaGear neXT panelboard is offered in 12 enclosure size configurations, with three different widths (30", 40", 45") and four different heights (60", 72", 84", 96"). These configurations simplify design and maximize stock inventory. All enclosures are available in surface-mounted design.

Each enclosure is NEMA-compliant, ANSI 61 finished code gauge steel.

Different enclosure types are available and compliant with the UL 50 standard:

NEMA 1

For indoor use to provide a degree of protection to personnel against access to hazardous parts and to provide a degree of protection against ingress of solid foreign objects (falling dirt).

Optional drip hood is also available.

NEMA 2

For indoor use to provide a degree of protection to personnel against access to hazardous parts, falling dirt and harmful effects on the equipment due to the ingress of water (dripping and light splashing).

NEMA 2 enclosure is provided with drip hood and door-in-door.

NEMA 3R

For either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts, falling dirt and harmful effects on the equipment due to the ingress of water (rain, sleet and snow); and that will be undamaged by the external formation of ice and snow with no damage to the external enclosure.

NEMA 4/4X

For either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts, falling dirt and windblown dust, and effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water and hose-directed water) and with no damage from the external formation of ice on the enclosure. 4X is stainless steel and corrosion resistant.

NEMA 12

Without knockouts, for indoor use to provide a degree of protection to personnel against access to hazardous parts, falling dirt and circulating dust (lint, fibers and flyings) and to prevent harmful effects on the equipment due to the ingress of water (dripping and light splashing) and to provide a degree of protection against light splashing and consequent seepage of oil and non-corrosive coolants.



Panelboard details

Bus stack

The bus stack consists of a back pan, busbars assembled one on top of the other and an insulator to protect from live components. Some bus stack configurations are IP20¹ finger-safe, an industry-exclusive and patented feature.

It can be either bottom or top fed. Busbars can be copper or aluminum. Silver-plated copper busbars are available as heat-rated or density-rated (1000 A per square inch); aluminum busbars are available only as heat-rated. Tin-plated busbars also available for applications in harsh environments where hydrogen sulfide is present, such as water treatment facilities.

Both main lug only (MLO) and main circuit breaker (MCB) configurations are available. The main circuit breaker can be either vertically or horizontally mounted. For the main lugs option, an appropriate barrier post kit is needed.

Standard mechanical lugs are available from 250 kcmil up to 750 kcmil. Compression lugs are also offered from 1/0 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.

Six bus stack ampere ratings are available: 250 A, 400 A, 600 A, 800 A, 1000 A and 1200 A.

The bus stack dimensions are optimized to reach the highest power density and number of circuits. Four different dimensions are available: 16X, 24X, 32X and 40X.

We define X-space as the number of mounting positions available on each bus stack side. One X-space is equal to 1.385". Each circuit-breaker frame and bus-stack-mounted accessory has specific requirements for X-spaces. Each set of lug pads also requires four mounting spaces. Refer to the breaker section for more details.

ReliaGear neXT features a field-reversible bus stack that can be flipped 180 degrees to accommodate top or bottom feeds without extra parts.

¹ Per IEC Standard 60529

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: feed-through, 2 sets of lug pads

Possible combinations of bus stack and plating type

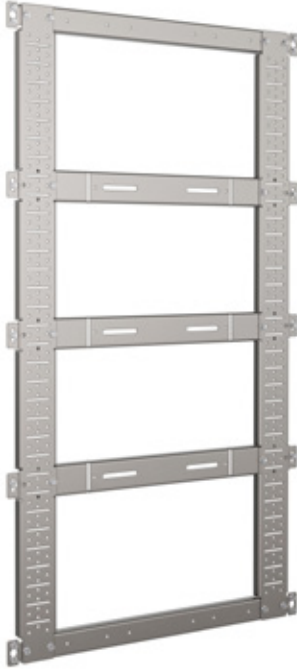
Bus height	16X				24X-32X-40X			
Bus type	1P-Silver	1P-Tin	3P-Silver	3P-Tin	1P-Silver	1P-Tin	3P-Silver	3P-Tin
Bus amperage								
250 A			•		•		•	
400 A			•		•	•	•	•
600 A			•		•	•	•	•
800 A			•		•	•	•	•
1000 A			•		•	•	•	•
1200 A			•		•	•	•	•

1P-Silver: Single-phase silver plating
 1P-Tin: Single-phase tin plating
 3P-Silver: Three-phase silver plating
 3P-Tin: Three-phase tin plating



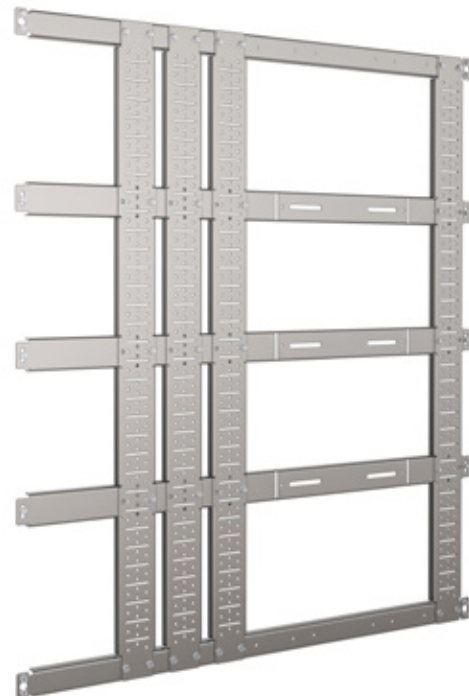
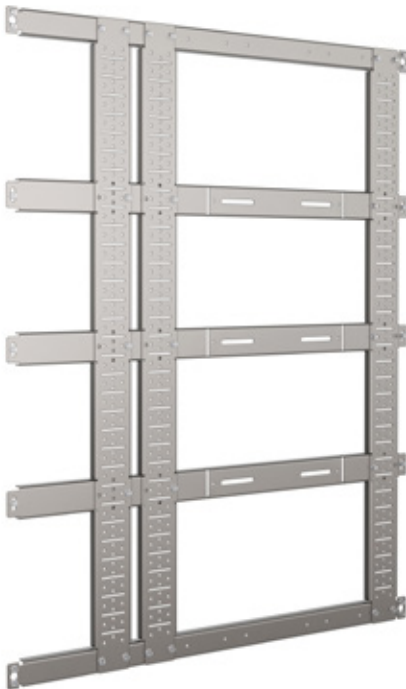
Panelboard details

Interior frame



To fit the bus stack into the enclosure, an interior frame is provided. For 30"-wide panels, the bus stack can be mounted only in the center of the enclosure. For 40"-wide panels, the bus stack must be offset, while on 45"-wide enclosures, the bus stack can be either center or offset mounted. These configurations help to achieve the highest ampacity and power density.

The interior frame also allows breakers to be well-positioned and properly bolted.



Panelboard details

Fronts, gutter doors, blanks and fillers

Top and bottom fronts, together with hinged gutter doors, complete the NEMA 1 enclosure style. Those grant independent access to either the incoming section or the branch distribution section. Vented fronts are needed when a 100% rated breaker is required.

Standard gutter doors do not prevent access to the breaker handle and trip unit settings. Options for locking doors are available to prevent access to the breakers. Locking doors are not available with horizontally mounted XT7 breakers.

With certain breaker frames, a filler is needed to cover the gap between the gutter door and the breaker load side. If the bus stack is not completely full of breakers, sheet metal blanks are needed to ensure isolation from live parts.



Panelboard details

Door-in-door option



A door-in-door option is also available with the ReliaGear neXT power panelboard.

This kit consists of two different doors, one within the other:

- The circuit breaker door, which provides access to the breaker operating levers with no risk of contact with live parts;
- The deadfront door, which gives access to the entire panel interior.

To complete the installation, a filler and a support are also needed.

The door-in-door is required with NEMA 2 enclosures.



Panelboard details

Panelboard configurations

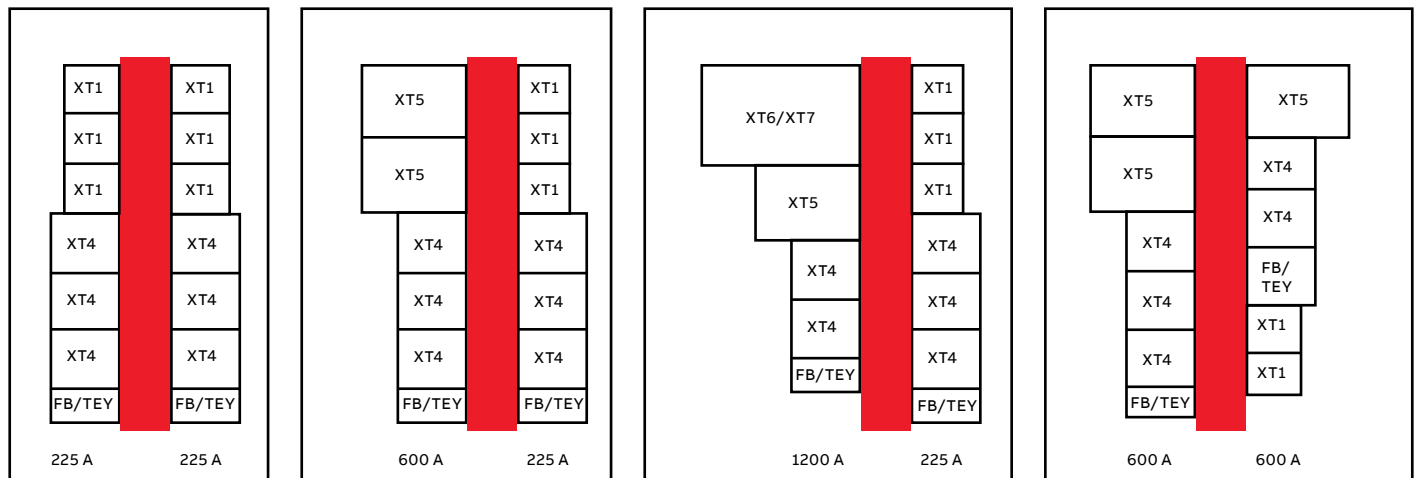
The ReliaGear neXT panelboard is available with differently sized bus stack configurations. Once the main bus ampacity is determined, the height of the bus determines both the height of the panelboard and the maximum number of available outgoing branch Tmax XT, Record Plus® FB and TEY circuit breaker X-spaces. Different circuit-breaker frame sizes require different numbers of mounting positions on the bus stack. See page 43 for details.

Main lugs and main circuit breaker options are both available up to 1200 A. The main circuit breaker can be either vertically or horizontally mounted. For vertical circuit-breaker mounting, XT5 or XT7 mounting kits are required.

All ReliaGear neXT panelboards are double sided, with branch breakers that can fit on both the left and right sides of the bus stack. The maximum ampacity of the breakers selected will determine the width of the panelboard needed. The bus stack can either be mounted in the center of the box or be offset to the right (default) or to the left. With an offset configuration, the maximum ampacity of the branch breakers mounted on the narrow and wide sides is different. This allows the panelboard to comply with the wire-bending space requirements per UL 67.

— Available configurations

Panelboard width (in.)	Bus stack position inside the box	Max. branch breaker ampacity on wide side (A)	Max. branch breaker ampacity on narrow side (A)
30	Center	225 (XT4)	225 (XT4)
40	Offset	600 (XT5)	225 (XT4)
45	Center	600 (XT5)	600 (XT5)
45	Offset	1200 (XT7)	225 (XT4)



— 30" center box

— 40" offset box

— 45" offset box

— 45" center box

— 4 configurations

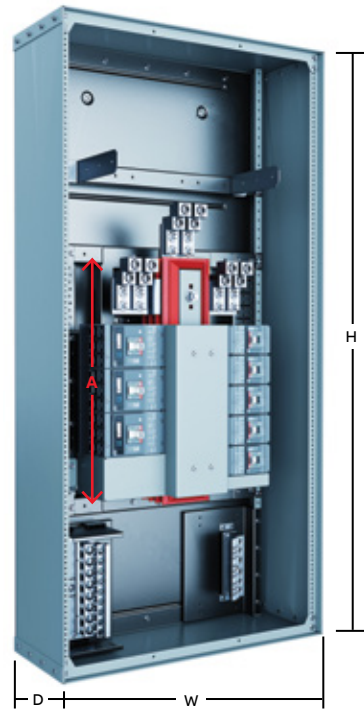
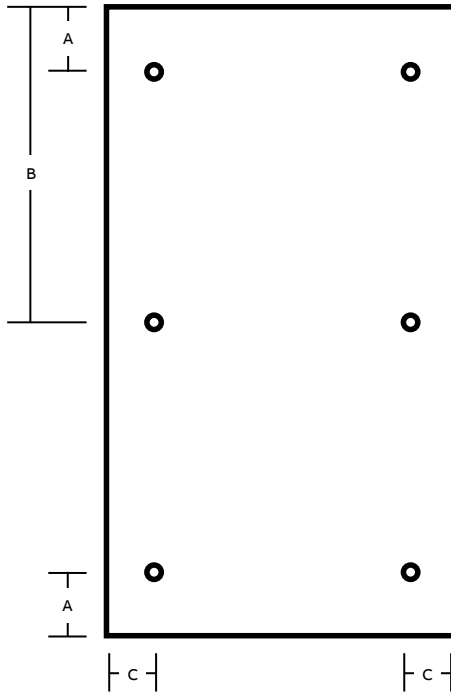
Panelboard details

Installation technical data

Torque values for panelboard hardware

Screw size	Location	Torque (in.-lb.)
¼-20 steel-thread forming	Fronts to enclosure (sides)	85-95
	Interior frame to enclosure	
	Neutral and ground to enclosure	
	Fillers to gutter covers	
	Vertical main mounting kit for enclosure	
	Fronts to enclosure (top/bottom)	50-58
	Branch breakers to interior frame	
	Panelboard interior to interior frame	
	Vertical main insert/filler(s) to panels	
	Blanks to interior frame	

01 The enclosure depth is 10.8" for NEMA 1 and 14.5" for all other NEMA types. Refer to the drawing at right for mounting hole locations.



01

NEMA 1 enclosure mounting holes
Plate hole distance from edges

Height	Holes	A	B	C
60"	4	8"	-	5"
72"	4	8"	-	5"
84"	6	8"	42"	5"
96"	6	8"	48"	5"

Panelboard dimensions

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

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.

Panelboard details

Accessories



Neutrals

Neutral with lug sizes ranging from 1/0 to 750 kcmil (accepting both copper and aluminum wires). Neutrals are all isolated, and bonding kit is included. 200% neutrals are available. Optional neutrals with ground fault CTs are also available (for main breaker only).



Grounds

Grounding kits are available in both isolated and bonded versions. They can accommodate 10 or 47 wires, aluminum or copper.



Service entrance kits

Service entrance barrier kits are available for XT4, XT5, XT6 and XT7 for the following wire sizes: 300 kcmil, 350 kcmil, 400 kcmil, 500 kcmil and 750 kcmil.

Panelboard details

Accessories



Surge protection devices

The SPD module is a plug-in accessory to be installed on the bus stack. This accessory can fit into panels 40" or 45" wide.

— Available in different configurations according to system voltage, impulse current and type:

System voltage	120 V AC Wye, 277 V AC Wye, 347 V AC Wye, 480 V AC Delta
Impulse current	65 kA, 80 kA, 125 kA, 150 kA, 200 kA, 300 kA
SPD type (according to NEC)	Type 1: Surge arrester Type 2: TVSS



RELT module

When activated, the RELT (reduced energy let-through) module helps to mitigate arc flash hazard, limiting the duration of fault current through the use of a user-selectable and settable secondary instantaneous pickup setting. This is a plug-in accessory to be installed on the bus stack, compatible with XT7 breakers with Ekip Touch trip units and can fit into panels 40" or 45" wide.

An additional wiring kit is needed to connect the module to the main circuit breaker, which is equipped with an Ekip Signalling module and Ekip Supply module.

Three different versions are available to cover all system voltages:

- 240 V–208/120 V
- 480 V–480/277 V
- 600 V–600/347 V



Drip hood

The drip hood prevents droplets from falling into the enclosure. A drip hood is supplied standard with NEMA 2 enclosures, and is optional for NEMA 1 enclosures.

Panelboard details

Accessories



Single-point metering unit

The AMP1 power and energy meter provides an integrated solution for power monitoring and single-point metering. With exceptional performance, the AMP1 monitors key electrical parameters of the main power coming into the panelboard. This information can then be transmitted to a building automation system (BAS), or similar system, to analyze usage and identify potential cost-saving measures. Offering ANSI 12.20 0.5% accuracy, the AMP1 is revenue-grade and features:

- Voltage, amperage, power and energy monitoring
- Backlit LCD display
- Data logging option to ensure data is still preserved locally
- Communication via Modbus RTU or BACnet – Versatile and widely used protocols
- User-enabled password protection
- UL 67 approval

The AMP1 module is a plug-in accessory to be installed on the bus stack. This accessory can fit into panels 40" or 45" wide.

A set of current transformers must be selected according to the ampacity needed for metering, together with a mounting kit for proper installation.

03

Molded case circuit breakers

Molded case circuit breakers

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Tmax XT range

Molded case circuit breakers

The SACE Tmax XT range offers higher performance, better protection and more precise metering than equivalent units and can handle from 15 A up to 1200 A.

Combined with precise electronic trip units in small frames, the new range delivers significant time savings and enhances installation quality. Reliability is further increased, and speed of installation reduced, thanks to Bluetooth and Ekip connectivity for mobile devices. Tmax XT circuit breakers and their accessories are constructed in compliance with UL 489 and CSA C22.2 standards.

The molded case circuit breakers for ReliaGear neXT power panelboards can also be used in ReliaGear SB switchboards. The same mounting hardware, fillers, spacers and rails are also applicable for ReliaGear SB.



Molded case circuit breakers (MCCB)

				XT1		
Frame size		[A]		125		
Poles		[No.]		3		
Rated voltage	(AC) 50–60 Hz	[V]		480 V Δ ⁽²⁾		
Versions				Fixed		
Interrupting ratings			N	S	H	
	240 V (AC)	[kA]	50	65	100	
	480 V (AC)	[kA]	25	35	65	
	600Y/347 V (AC)	[kA]	18	22	25	
	600 V (AC)	[kA]	–	–	–	
Mechanical life		[No. operations]			25000	
		[No. hourly operations]			240	
Dimensions – fixed (width x depth x height) ⁽³⁾	3 poles	[mm]/[in]		[76.2 x 185.16 x 264.67] / [3 x 7.29 x 10.42]		
Weight ⁽³⁾	Fixed 3 poles	[kg]/[lb]		[1.69] / [3.73]		
Trip units for power distribution						
TMF						
TMA						
Ekip DIP						
Ekip Touch						

(1) Current-limiting circuit breaker in 480 V AC and 600 V AC

(2) 600Y/347

(3) Weights and dimensions include line-side connector and mounting bracket



XT4					XT5				XT6				XT7	
250					400-600				800				800-1000-1200	
3					3				3, 4				3	
600					600				600				600	
Fixed					Fixed				Fixed, withdrawable				Fixed	
N	S	H ⁽¹⁾	L ⁽¹⁾	V ⁽¹⁾	N	S	H ⁽¹⁾	L ⁽¹⁾	N	S	H	S	H	L
65	100	150	200	200	65	100	150	200	65	100	200	65	100	200
25	35	65	100	100	35	50	65	100	35	50	65	50	65	100
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	22	25	50	65	18	25	35	65	20	25	35	25	50	65
25000					20.000				20.000				10.000	
240					240				240				240	
[104.9 x 198.12 x 248.67] / [4.13 x 7.8 x 9.79]					[139.45 x 206.25 x 387.6] / [5.49 x 8.12 x 15.26]				[209.04 x 211.33 x 487.93] / [8.23 x 8.32 x 19.21]				[210.06 x 276.61 x 487.93] / [8.27 x 10.89 x 19.21]	
[2.87] / [6.33]					[7] / [15.43]				[12.02] / [26.51]				[17.18] / [37.89]	
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Tmax XT range

100% rated breakers

All Tmax XT circuit breakers are available both as standard versions and as 100% rated versions. Because of the additional heat generated at 100% of continuous current rating, the use of specific 90 °C rated wires sized per 75 °C ampacity may be required.

Frame	Max. ampacity (A)	Wires
XT4	200	75 °C
XT5	400	75 °C
XT7	800	75 °C
XT7	1000/1200	90 °C

Tmax XT range

Trip units

SACE Tmax XT trip units represent a new benchmark for molded case circuit breakers, being able to satisfy any performance requirement.

The Tmax XT trip units are designed to be used in a wide range of applications. These complete, flexible protection trip units can be adapted to the actual level of protection required, independently of the complexity of the system.

The range is available for three levels of performance to meet any requirement, from simple to advanced applications:

- TM thermal-magnetic trip unit
- Ekip DIP electronic trip unit
- Ekip Touch/Hi-Touch electronic trip units

Molded case switches are also available as main circuit breaker only.

For the single-phase offering, the following trip units are available:

- XT1, XT4, XT5, XT6:
 - TM thermal-magnetic trip unit
- XT7:
 - Ekip DIP electronic trip unit
 - Ekip Touch/Hi-Touch electronic trip units



Tmax XT range

Thermal-magnetic trip unit

The thermal-magnetic trip unit is an easy solution for protection against overloads and short circuits. Overload protection is ensured by the ABB thermal device, based on a temperature-dependent bimetal heated by current. Protection against short-circuit is realized with a magnetic device.

Key:

1. Current threshold for short-circuit protection.
2. Rotary switch for short-circuit protection.
3. Current threshold for overload protection.
4. Rotary switch for overload threshold setting.



Rotary switch

Depending on the version, it is possible to set the desired thresholds for protection by turning the front rotary switch.

Tmax XT range

Thermal-magnetic trip unit

Field of application	Trip unit	L – overload protection			I – short-circuit protection	
		Current threshold	Trip time	Current threshold	Trip time	
Power distribution protection	TMF	Fixed	Fixed	Fixed	Fixed instantaneous	
	TMA	Adjustable	Fixed	Adjustable	Fixed instantaneous	

—
TMF

In [A]	15	20	25	30	35	40	45	50	60	70	80	90	100	110	125	150	175	200	225	250	
XT1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•						
XT4			•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•

—
TMA

In [A]	80	90	100	110	125	150	175	200	225	250	300	400	500	600	800
XT5											•	•	•	•	
XT6														•	•

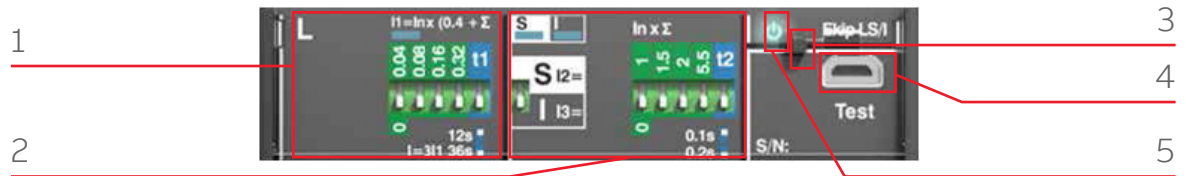
Tmax XT range

Ekip DIP

The first level of electronic trip units, Ekip DIP trip units, are based on microprocessor technologies and guarantee high reliability, protection adjustability and coordination.

They provide protection against overloads, selective short circuits, short circuits and ground faults. The power required for their operation is provided directly from the current sensors.

- Key:
1. DIP switches for overload-protection setting.
 2. DIP switches for short-circuit and time-delayed short-circuit.
 3. Slot for lead seal.
 4. Test connector.
 5. Power-on LED.



DIP switches

The DIP switches on the front of the trip unit allow manual settings when the trip unit is off.

LEDs

The LEDs on the front indicate the status of the release (on/off) and provide information about the protection tripped when the Ekip TT accessory is connected.

Front connector

The connector on the front of the unit allows the connection of:

- Ekip TT for trip testing, LED-test and signalling of the most recent trip.
- Ekip T&P for connection to a laptop with the Ekip Connect program (thus measurement reading, as well as trip and protection function tests, are made available to the user).

Thermal memory

All the Ekip DIP trip units include a thermal memory function. The trip unit records the trips that have occurred in the last few minutes. Since the trip causes overheating, to protect the cables and let them cool down, the trip unit imposes a shorter delay-tripping time in case of a fault. Thus, the system is protected against damage due to cumulative overheating. This can be disabled if needed by using the Ekip T&P.

Characteristics of electronic Ekip DIP trip units

Operating temperature	-25 °C to +70 °C
Relative humidity	98%
Self-supplied	0.2xIn (single phase)*
Auxiliary supply (where applicable)	24 V DC ± 20%
Operating frequency	45 to 66 Hz
Electromagnetic compatibility	IEC 60947-2 Annex F

*For 10 A: 0.4 in

Tmax XT range

Ekip DIP

Field of application	Trip unit	L – overload protection			S – selective short-circuit protection			I – short-circuit protection	
		Current threshold	Trip time	Trip time	Current threshold	Trip time	Current threshold	Trip time	
Power distribution protection	Ekip DIP	LSI	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	Fixed
		LSIG	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	Fixed

In [A]	10	25	40	60	100	125	150	225	250	300	400	600	800	1000	1200
XT4			•	•	•		•	•	•						
XT5									•	•	•				
XT6												•	•		
XT7												•	•	•	•

Tmax XT range

Ekip Touch/Hi-Touch

Ekip Touch/Hi-Touch trip units provide a wide series of protections and high accuracy measurements of all electrical parameters. They are intended to integrate perfectly with most common automation and supervision systems.



Communication and connectivity

The Ekip Touch/Hi-Touch trip units integrate perfectly into most common automation and energy management systems to improve productivity and energy consumption and for remote control. The circuit breakers can be equipped with communication modules for Modbus, Profibus and DeviceNet™ protocols, as well as Modbus TCP, Profinet and EtherNet/IP™. The modules can be easily installed even at a later date.

Furthermore, the IEC 61850 communication module enables connection to automation systems widely used in medium-voltage power distribution to create intelligent networks (smart grids). In addition, with an easy connection thanks to the Ekip Com hub module, the circuit breakers allow the system to be monitored via ABB Ability™ Energy and Asset Manager.

The integrated display makes interaction with the Ekip Touch/Hi-Touch an easy and intuitive experience for the user, and the embedded Bluetooth functionality allows fast interaction via EPiC (electrification products intuitive configurator), the new mobile application to configure and check the status of ABB low-voltage circuit breakers.

Tmax XT range

Ekip Touch/Hi-Touch

Trip unit	Current measurement and protection	Voltage, power, energy measurements	Voltage, power, energy protections	Embedded functions*
Ekip Touch LSI	•	○	○	○
Ekip Touch LSIG	•	○	○	○
Ekip Touch Measuring LSI	•	•	○	○
Ekip Touch Measuring LSIG	•	•	○	○
Ekip Hi-Touch LSI	•	•	•	•
Ekip Hi-Touch LSIG	•	•	•	•

• Default available

○ Additional features

* Please refer to the Tmax XT catalog 1SXU210248C0201 for more details.

In [A]	40	60	100	125	150	225	250	300	400	600	800	1000	1200
XT4			•		•	•	•						
XT5							•	•	•	•			
XT7										•	•	•	•

Record Plus FB and TEY

Molded case circuit breakers

Record Plus FB and TEY circuit breakers complete the breakers offering for the ReliaGear neXT panelboard.

The Record Plus FB line features true one- and two-pole construction, has a double-break contact system for fast response and current limitation to help with arc flash and coordination. This non-adjustable thermal-magnetic circuit breaker up to 100 A offers four interrupt tiers — through 100 kA at 480 V AC and 35 kA at 600/347 V AC.

TEY also offers true one-pole construction up to 70 A and two-pole construction up to 125 A. This line offers non-adjustable thermal-magnetic trip units with three interrupt tiers — through 100 kA at 240 V and 65 kA at 480/277 V AC.

Record Plus FB

Poles	1, 2
Amperes	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
Trip unit	Fixed thermal-magnetic

Interrupting ratings

Ampere rating	Maximum voltage	Type	Poles	UL listed interrupting rating rms symmetrical kA AC voltage				
				240 V	277 V	347 V	480 V	600 V
15–100	600Y/347 V AC	FBV	1	35	35	22	–	–
			2	65	–	–	35	22
		FBN	1	65	65	25	–	–
			2	150	–	–	65	25
		FBH	1	100	100	35	–	–
			2	200	–	–	100	35

TEY

Poles	1, 2
Amperes	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125
Trip unit	Fixed thermal-magnetic

Interrupting ratings

Ampere rating	Maximum voltage	Type	Poles	UL listed interrupting rating rms symmetrical kA AC voltage	
				120/240 V	480/277 V
15–70 (1-pole)	277 V AC (1-pole)	TEYD	1–2	65	25
15–125 (2-pole)	480Y/277 V AC (2-pole)	TEYH	1–2	65	35
		TEYL	1–2	100	65

01 1-pole FB

02 2-pole FB

03 1-pole TEY

04 2-pole TEY



01



02



03



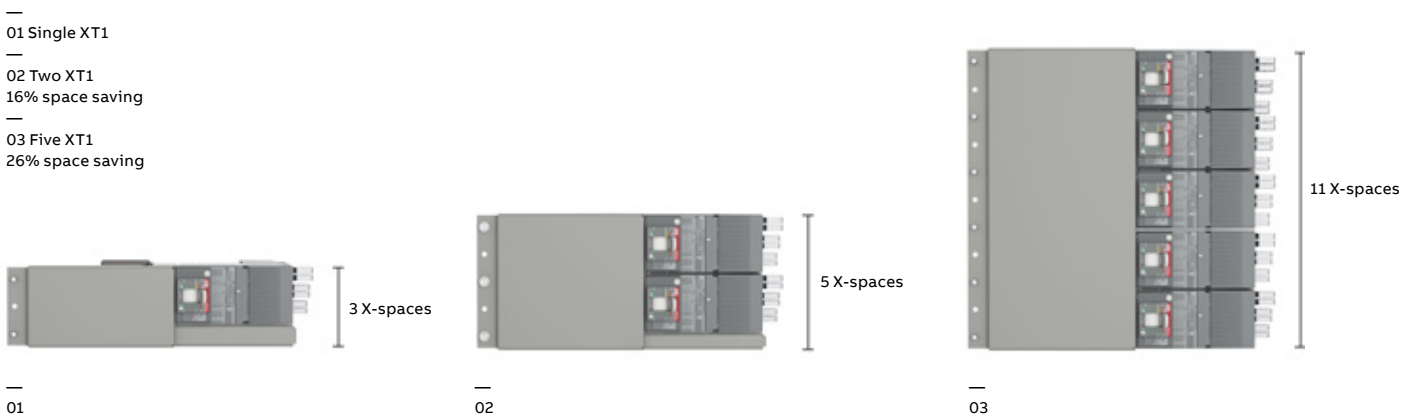
04

Mounting space requirements

For molded case circuit breakers

Each circuit breaker frame has specific requirements for the number of mounting positions (X-spaces). 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. SPD, metering and RELT also require X-space, since they are plug-in modules. Refer to the table below. In main lugs configuration, each set of lug pads occupies 4 X-spaces. A set of lug pads is needed also with a vertical main breaker.

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



Note: Installation of Tmax XT1 circuit breakers requires a rail for ReliaGear neXT power panelboards and ReliaGear SB switchboards. Refer to Spacers in the numbering system chapter.

Line-side connectors and lugs

For molded case circuit breakers

Line-side connectors

Each breaker horizontally mounted on the bus stack is provided with a line-side connector (LSC) and a mounting bracket. The LSC is designed to ensure an easy and accurate connection between the breakers and the conductive busbars. A patented clip design with a loaded spring ensures full contact in any circumstance. Each breaker frame has a specific LSC with the right number of clips to ensure the highest performance.

Breaker lugs offering

All ReliaGear neXT breakers are provided with a set of lugs on the load side. All lugs accept either copper or aluminum wires.

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
XT4	25-70	#14-1/0	1	Horizontal
XT4	80-225	#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*/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

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

Accessories

For molded case circuit breakers

Internal accessories

Common internal accessories (shunt trips, undervoltage releases, auxiliary switches, etc.) are available in common voltage ratings and are UL listed for field assembly.

Auxiliary contacts — AUX

The SACE Tmax XT, Record Plus FB and TEY circuit breakers can be equipped with auxiliary contacts that signal the status of the breaker and can be routed outside the circuit breaker itself. Options are one or two AUX on XT1, XT4, XT5 and XT6, four AUX on XT7 and one AUX on 2-pole FB and TEY. The following information is available:

- Open/closed (Q): indication of the status of the circuit-breaker power contacts
- Trip (SY): signals that the circuit breaker is opening due to the intervention of the trip unit, or to the opening of undervoltage/shunt opening releases, or to the use of the test button

Shunt opening release — SOR/YO

This allows the circuit breaker to open by means of a non-permanent electrical control. Release operation is guaranteed for voltage between 70% and 110% of the rated power supply voltage (Un), in both alternating and direct current. The SOR is equipped with a built-in limit contact to shut off the power supply in the open position with the trip unit tripped. A remote-controlled emergency opening command can be generated by connecting an opening button to the SOR.

Frame	Voltage		
XT1–XT4–XT5–XT6	24–30 V AC/DC	110–127 V AC/ 110–125 V DC	220–240 V AC/ 220–250 V DC
XT7	24 V AC/DC	110–120 V AC	220–240 V AC
FB (2-pole only)	24 V AC/DC	110–130 V AC 110–125 V DC	220–240 V AC/ 250 V DC
TEY (2-pole only)	24 V AC/DC	120 V AC	240 V AC

Undervoltage release — UVR/YU

This allows the circuit breaker to open when the release is subject either to a power failure or a voltage drop. As prescribed in the standards, opening is guaranteed when the voltage is between 70% to 35% Un. After tripping, the circuit breaker can be closed again if the voltage exceeds 85% of Un. When the undervoltage release is not energized, neither the circuit breaker nor the main contacts can be closed. A remote-controlled emergency opening command can be generated by connecting an opening button to the UVR.

Frame	Voltage		
XT1–XT4–XT5–XT6	24–30 V AC/DC	110–127 V AC/ 110–125 V DC	220–240 V AC/ 220–250 V DC
XT7	24 V AC/DC	110–120 V AC	220–240 V AC

Padlocks and key locks

Padlocks or key locks prevent the circuit breaker from being closed and/or opened. Maximum number of padlocks (PLL) and maximum stem dimensions are the following:

Frame	Padlocks*	Stem min.–max.
XT1–XT4	3	Ø 0.24–0.275" / Ø 6–7 mm
XT5–XT7	3	Ø 0.24–0.315" / Ø 6–8 mm
XT6	3	Ø 0.2–0.31" / Ø 5–8 mm
FB / TEY	1	Ø 0.25" / Ø 6.35 mm

*Padlocks are not included in the kits.

Multiple models of keylock provisions are offered: Kirk KCAM00010 / KCAM00010S (XT5–XT7), Ronis 1228 (XT1–XT4–XT5–XT7) and Castell (XT7). Kirk and Castell locks are at customer expense and not provided in the kit. Two options are available for Ronis: same keys and different keys. This allows the customer to create interlocking logics.

Internal modules

Available with several different communication protocols, the Ekip Com internal module is installed directly inside the circuit breaker. It allows the circuit breaker to be integrated in a communication network for supervision and control. Ekip Com internal modules can be used for XT4 and XT5. They can be connected to the trip unit when Ekip Touch is used. Protocols supported include:

- Modbus RTU
- Modbus TCP/IP
- Profinet
- EthernNet/IP
- IEC 61850

Accessories

For molded case circuit breakers

Cartridge modules

Cartridge Ekip Com modules, along with the internal modules, allow integration in any communication network. They can be used only on the XT7 circuit breaker equipped with an Ekip Touch/Hi-Touch trip unit, mounted directly on the terminal box. Several modules can be used simultaneously, enabling systems with different protocols. Modbus RTU, Profibus-DP and DeviceNet modules contain a terminating resistor and two DIP switches for optional activation to terminate the serial network or bus. The Profibus-DP module also contains a polarization resistor and two DIP switches for its activation.

- Modbus RTU
- Modbus TCP/IP
- Profinet
- Profibus
- Ethernet/IP
- DeviceNet
- IEC 61850

Ekip Com hub

The Ekip Com hub is the new communication module for cloud connectivity. A circuit breaker equipped with the Ekip Com hub can establish a connection with the ABB Ability™ Energy and Asset Manager for the low-voltage power distribution panel. This dedicated module is available for the XT7 breaker even when other modules are present. For further information on ABB Ability™ Energy and Asset Manager, please see page 48.

Signalling modules

The Ekip 2K signalling cartridge modules, available for XT7, supply two input and two output contacts for control and remote signalling of alarms and circuit breaker trips.

The Ekip 1K signalling module, available for the XT5, supplies one input contact and one output contact for control and remote signalling. It is installed inside the circuit breaker in the housing provided on the left down side of the circuit breaker and can be used when an Ekip Touch/Hi-Touch trip unit is present.

Ekip signalling modules can be programmed from the trip unit display or via the Ekip Connect software and app. When using Ekip Connect, combinations of events can be freely configured.

Ekip power supply

The Ekip power supply module supplies all Ekip trip units and modules present on the XT7 with several auxiliary power sources (in AC or DC). The cartridge module permits the installation of other advanced modules. It can be field installed at any time. Two versions are available according to the control voltage:

- Ekip supply 110–240 V AC/DC
- Ekip supply 24–48 V DC

This module is always needed with any Ekip Com module or the signalling 2K module.

Accessories

Installation manuals

Additional technical information, instructions and installation manuals can be found in the following documents:

Power panelboard

1SQC900003M0201	Low-voltage power panel installation manual – Bulk pack
1SQC900004M0201	Low-voltage power panel installation manual – Assembled interior

Accessories

1SQC900001M0201	AMP1 main circuit breaker meter
1SQC900002M0201	Door-in-door front
1SQC900005M0201	RELT unit
1SQC900006M0201	SPD unit
1SQC900007M0201	Solid neutral and ground fault neutral
1SQC900008M0201	Enclosures (NEMA 1, 3R, 4/4X, 12)
1SQC900009M0201	Dual main lug
1SQC900010M0201	Service entrance kit

Connectivity

Scalable solution for energy and asset management

ABB Ability™ Energy and Asset Manager is the state-of-the-art cloud-solution for monitoring, supervising and analyzing site equipment as well as the site's electrical distribution system, resulting in improved overall performance, efficiency and safety.

Through its scalable and flexible approach, ABB Ability™ Energy and Asset Manager ensures full-range integration of main electrical low- and medium-voltage equipment installed in the distribution and sub-distribution switchboards. It also enables upgrades at any time via the ABB Ability Marketplace™ with just a click. With a single easy-to-use interface, ABB Ability™ Energy and Asset Manager assists the user by means of a cloud computing or hybrid platform, enabling analysis of relevant data and optimization of installation anytime, anywhere. Through an intuitive web app interface, ABB Ability™ Energy and Asset Manager assists anytime and anywhere via smartphone, tablet or personal computer so the user can:

- **Monitor**
Discover plant performance, supervise the electrical system and allocate costs to improve productivity and efficiency.
- **Optimize**
Schedule and analyze automatic reports, improve the use of assets and make the right business decision.

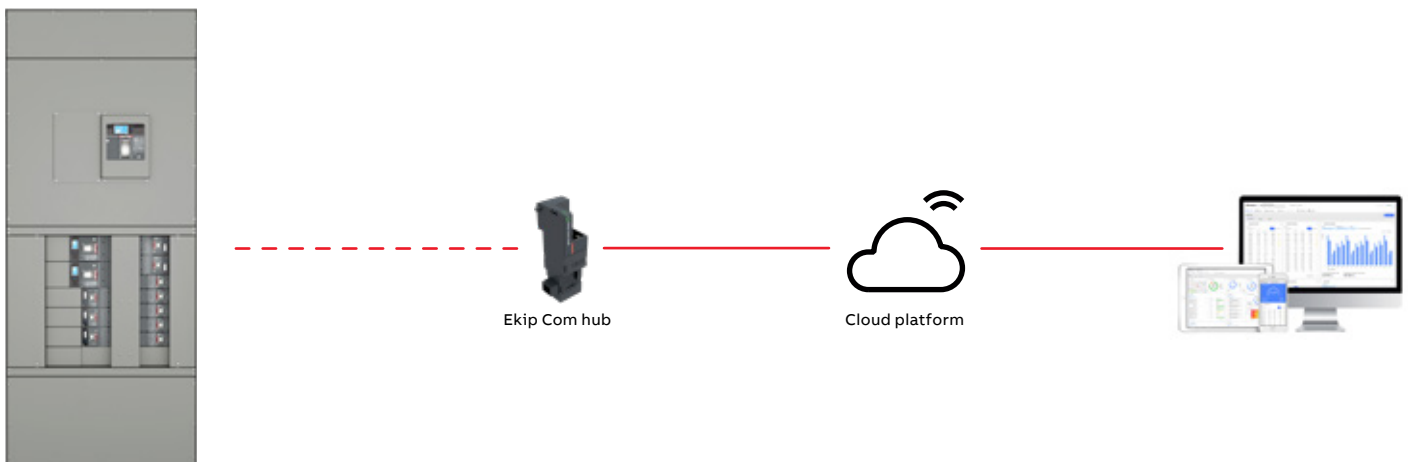
- **Predict**
Suggest the best maintenance date and reliability curve of installed assets based on real conditions to ensure OpEx savings.
- **Control**
Set up alerts and notify key personnel, and remotely implement an effective power management strategy to achieve energy savings in a simple way.

ABB Ability™ Energy and Asset Manager enables the collection of electrical information from the ABB devices installed in the low-voltage power distribution panels. This innovative solution also provides access on a multi-site level, simultaneously monitoring and comparing the performance of different facilities. In addition, it can provide personal user profiles depending on the level of access they require.

ReliaGear neXT with Ekip Com hub

The SACE Tmax XT equipped with the new Ekip Com hub establishes the cloud connection for the entire panel. This dedicated cartridge-type communication module just needs to be inserted into the terminal box and connected to the Internet.

For more information, please visit <https://new.abb.com/about/our-businesses/electrification/abb-ability/energy-and-asset-manager>.





04

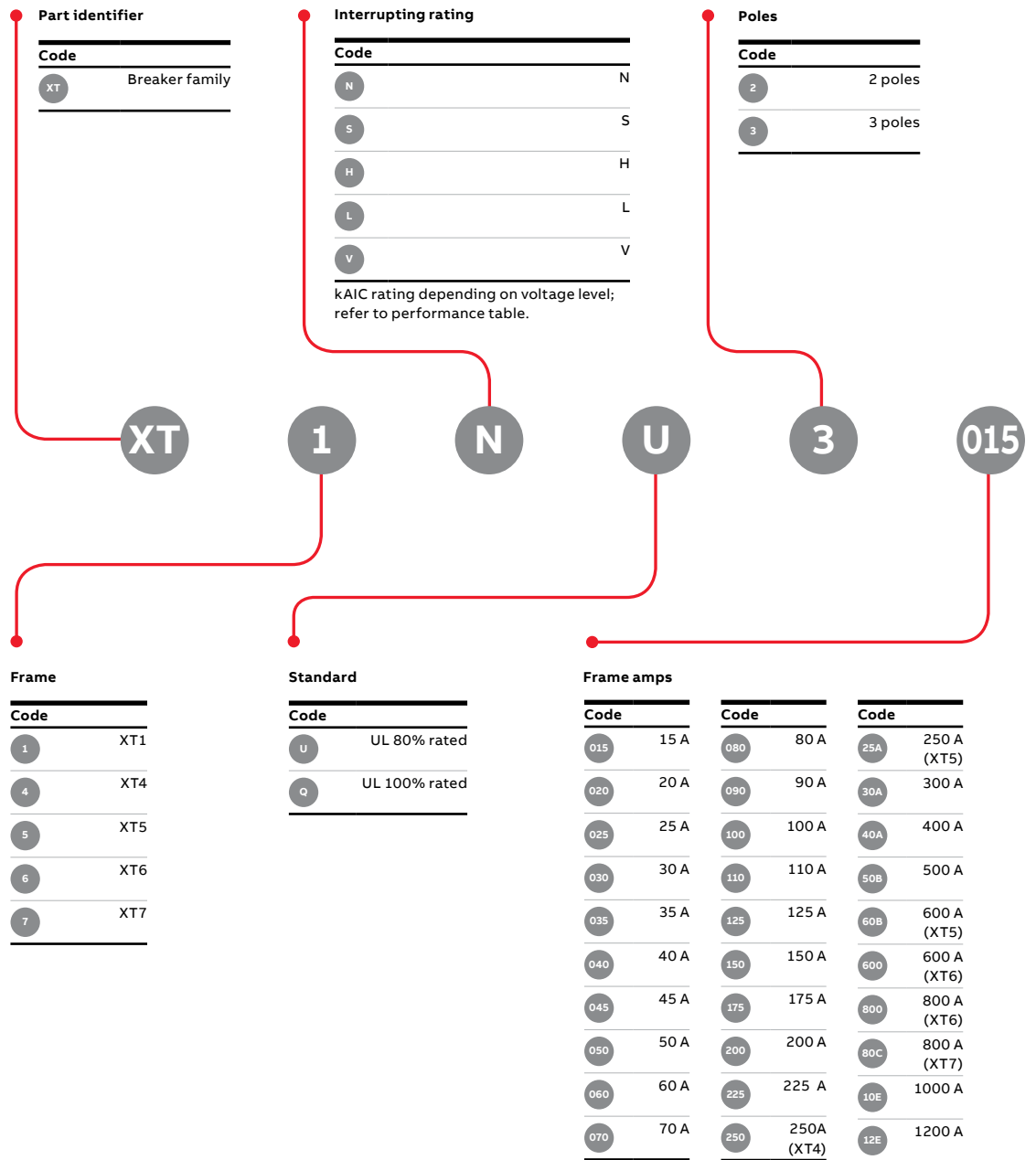
**Panelboard selection guide/
numbering system**

Panelboard selection guide/numbering system

Panelboard selection guide/numbering system	
XT breakers	52–53
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Single-point metering – AMP1	65
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Meter CTs mounting kit	66
Drip hood	66

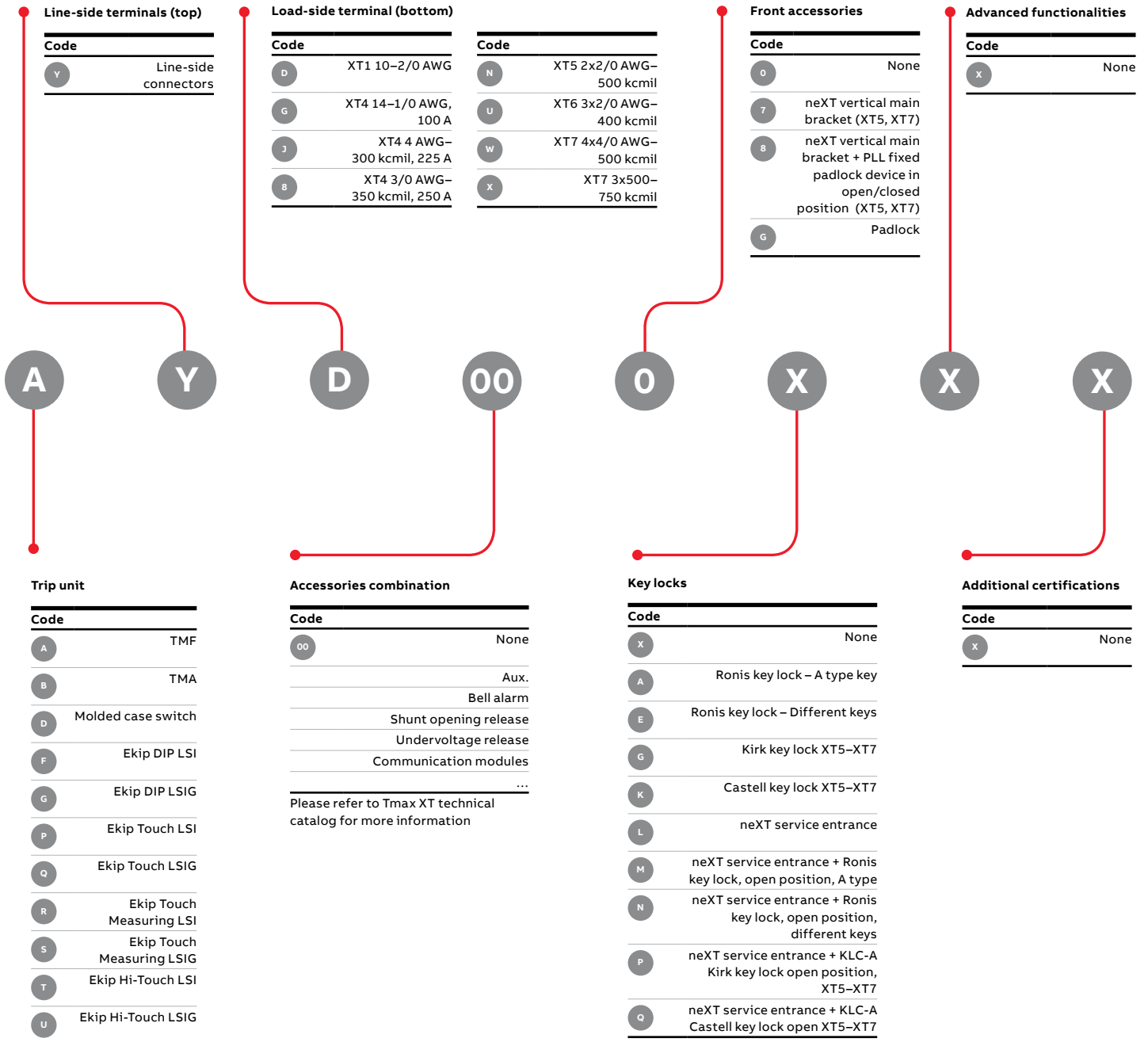
Catalog number scheme

XT breakers



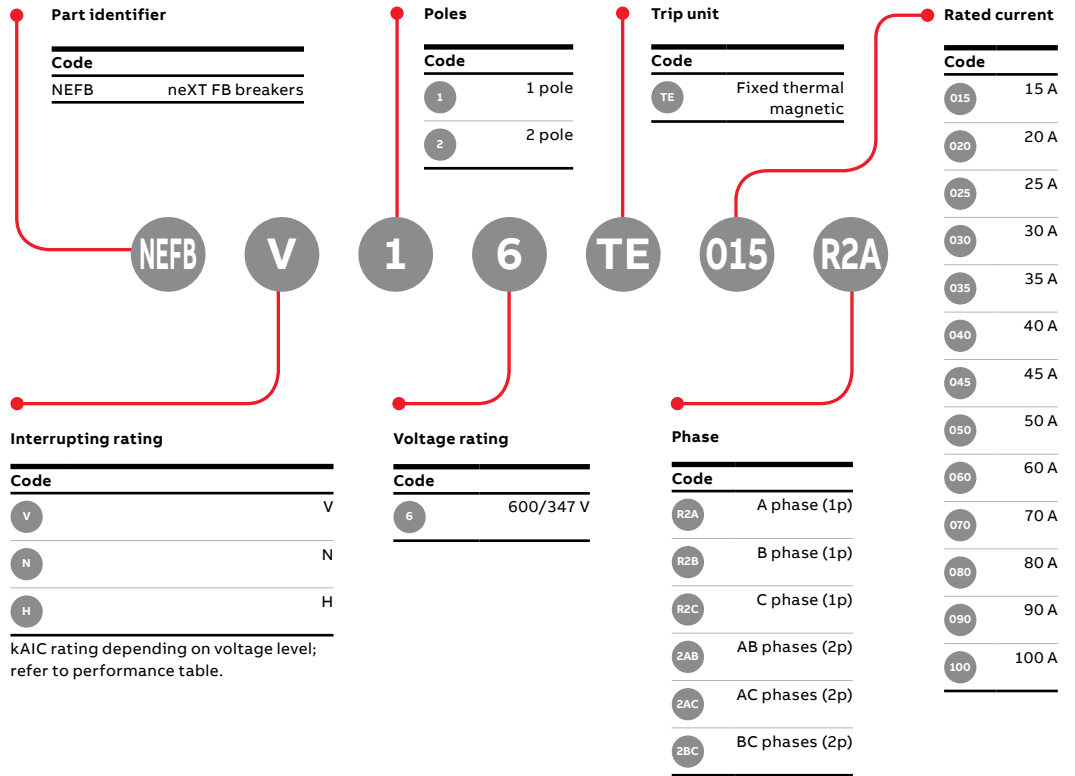
Note: Tmax XT1 circuit breakers require a rail for installation in ReliaGear neXT power panelboards and ReliaGear SB switchboards if not already installed in your existing ReliaGear neXT or SB equipment.

- SR1XBF for 1 single XT1
- SR2XBF for 2 adjacent XT1
- SR5XBF for 5 adjacent XT1

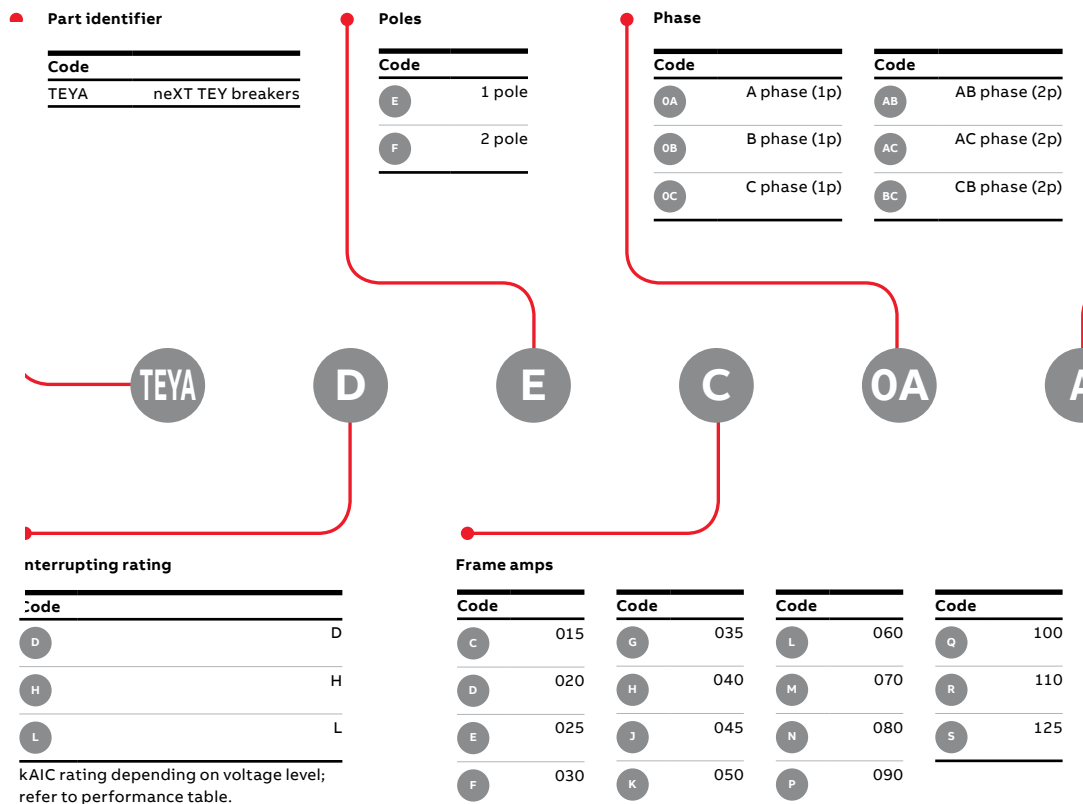


Catalog number scheme

FB breakers



TEY breakers



Catalog number scheme

Enclosure



Part identifier

Code	Description
ER	Enclosure

NEMA type

Code	Description
A	NEMA 1
H	NEMA 2
R	NEMA 3R
C	NEMA 4
S	NEMA 4X
D	NEMA 12

ER 60 30 A

Height

Code	Height
60	60"
72	72"
84	84"
96	96"

Width

Code	Width
30	30"
40	40"
45	45"

Load lug

Code	Description
A	(1) #14-10. 15-20 A
B	(1) #10-4. 25-60 A
D	(1) #4-2/0. 70-125 A

Auxiliary contacts

Code	Description
X	None
o	277 V

Other

Code	Description
X	None

Other

Code	Description
X	None

X X X X X X

Shunt trip

Code	Description
X	None
K	24 V
M	120 V
N	240 V

Bell alarm

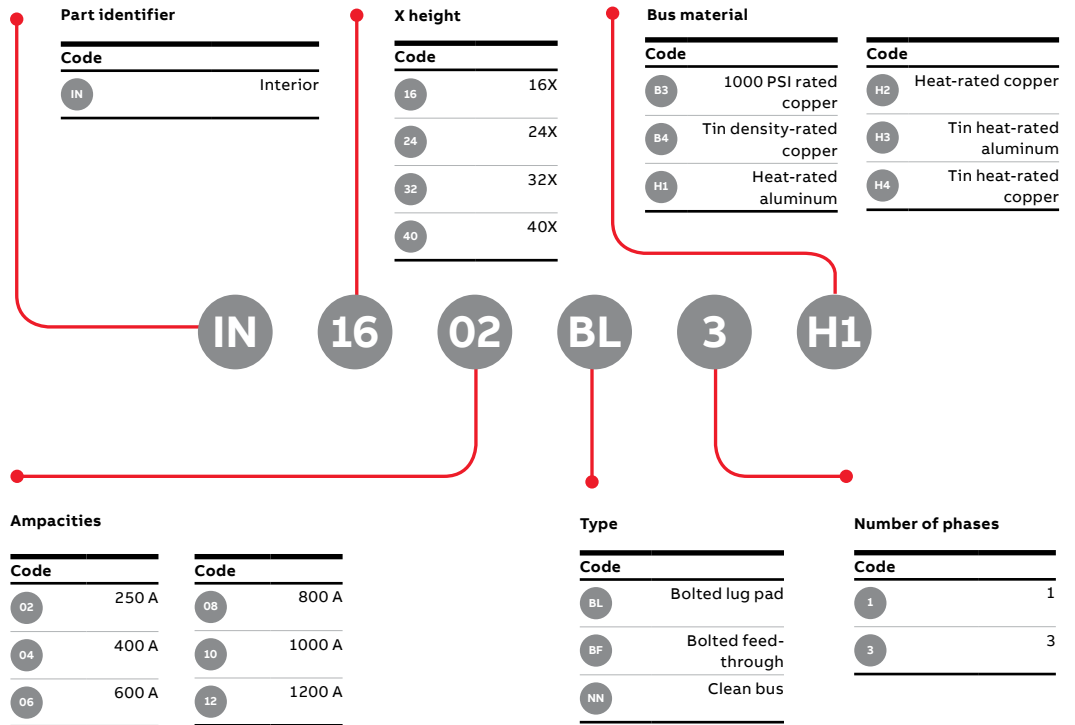
Code	Description
X	None
A	Bell alarm

Padlock

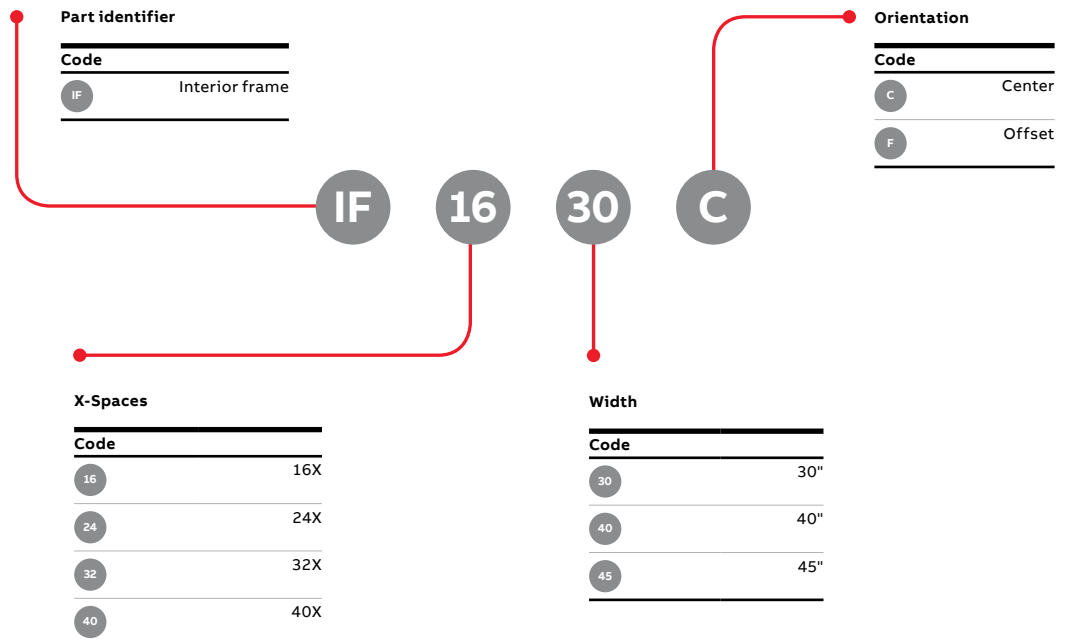
Code	Description
X	None
c	Padlock

Catalog number scheme

Bus stack

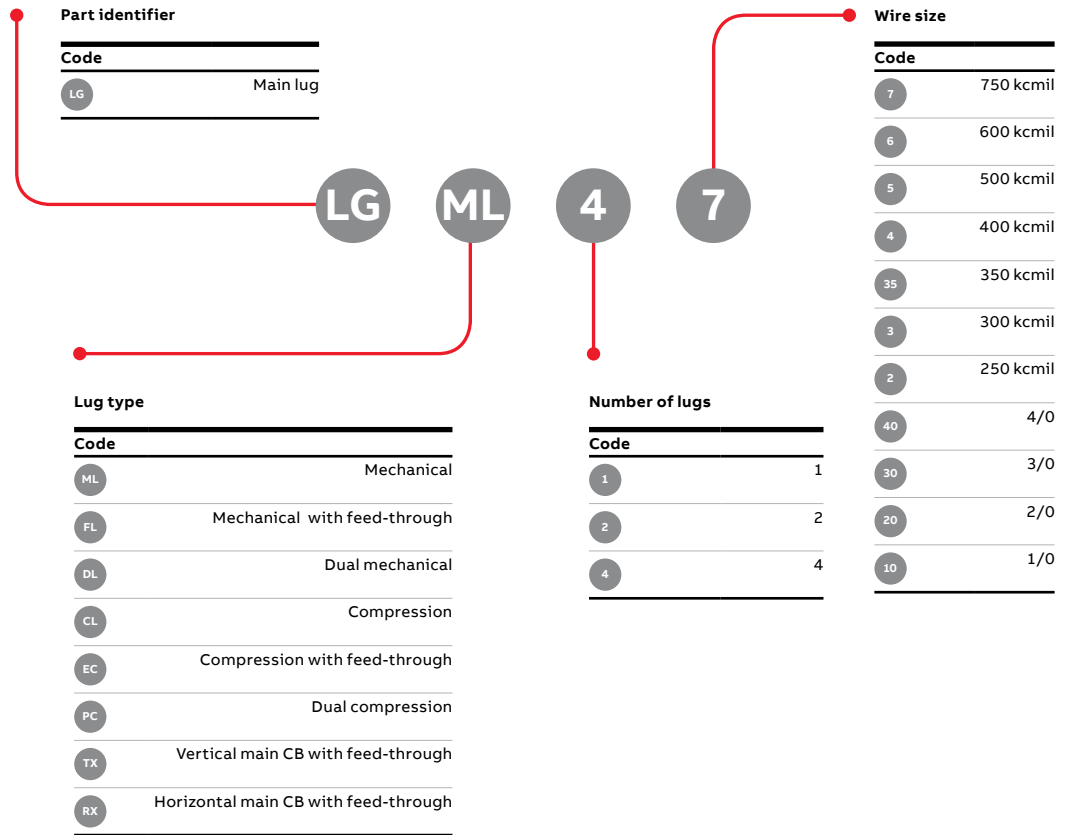


Interior frame

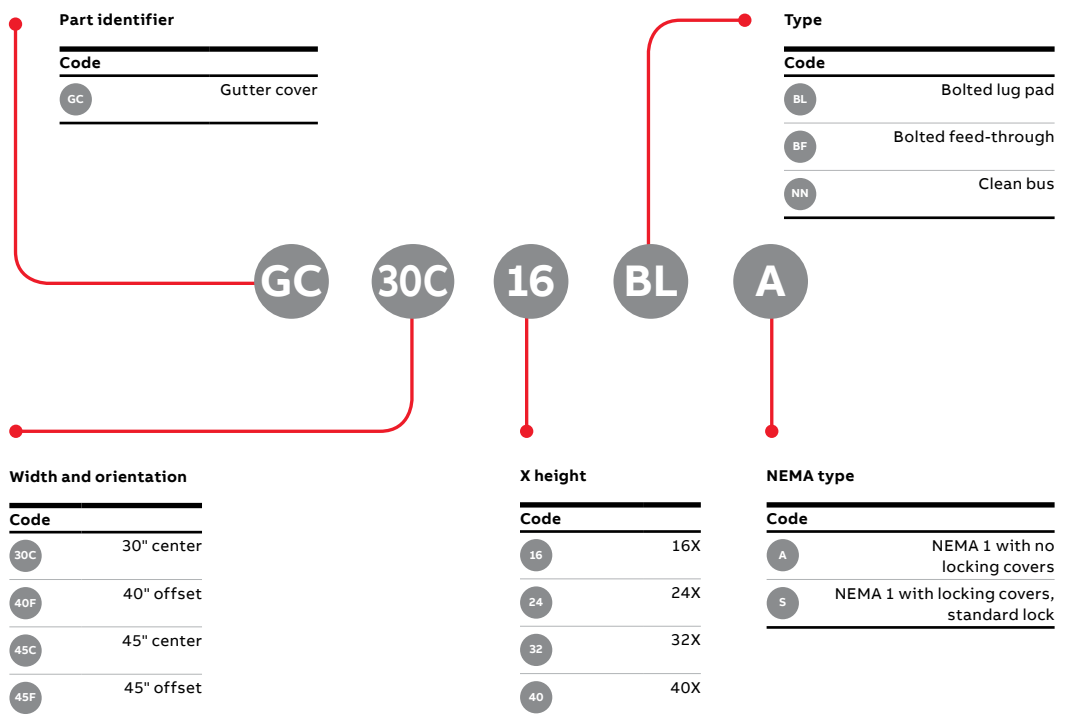


Catalog number scheme

Main lugs

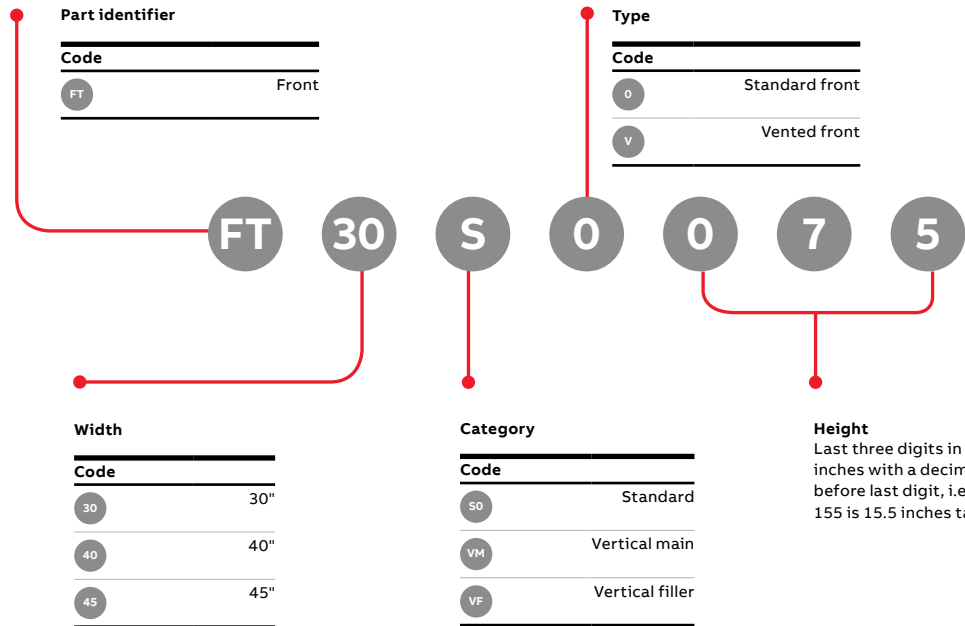


Gutter covers



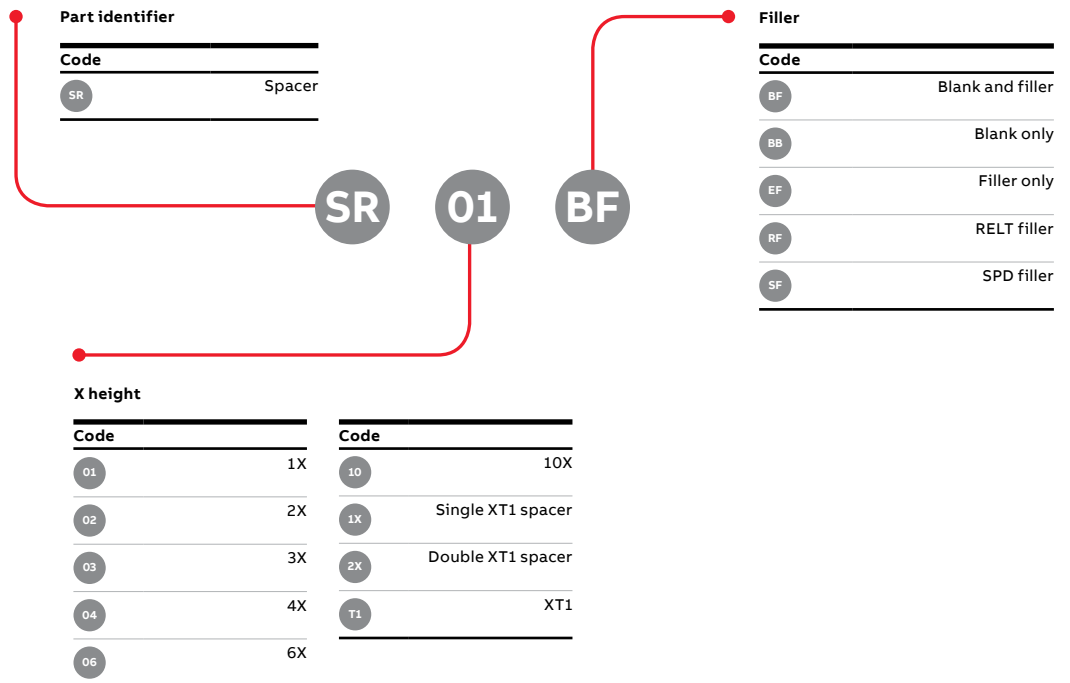
Catalog number scheme

Fronts



Note: Vented fronts to be used with 100% rated breakers.

Spacers

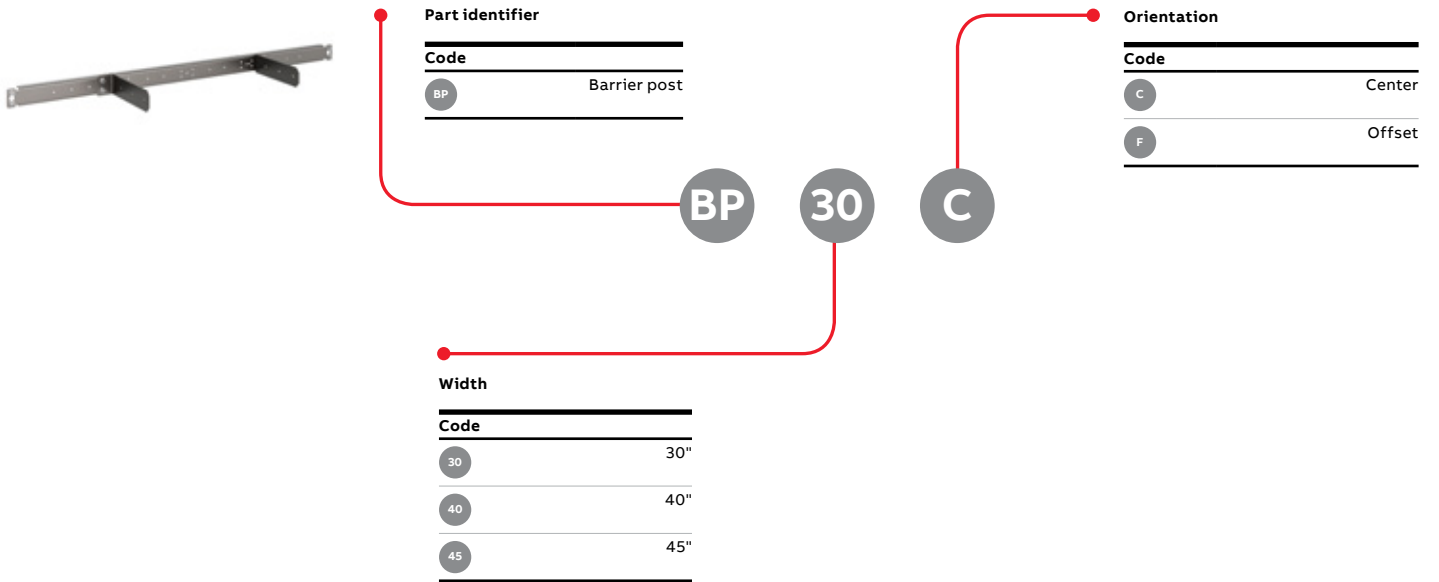


Note: Tmax XT1 circuit breakers require a rail to mount in ReliaGear neXT power panelboards and ReliaGear SB switchboards. This rail and associated hardware comes standard with the different spacer options.

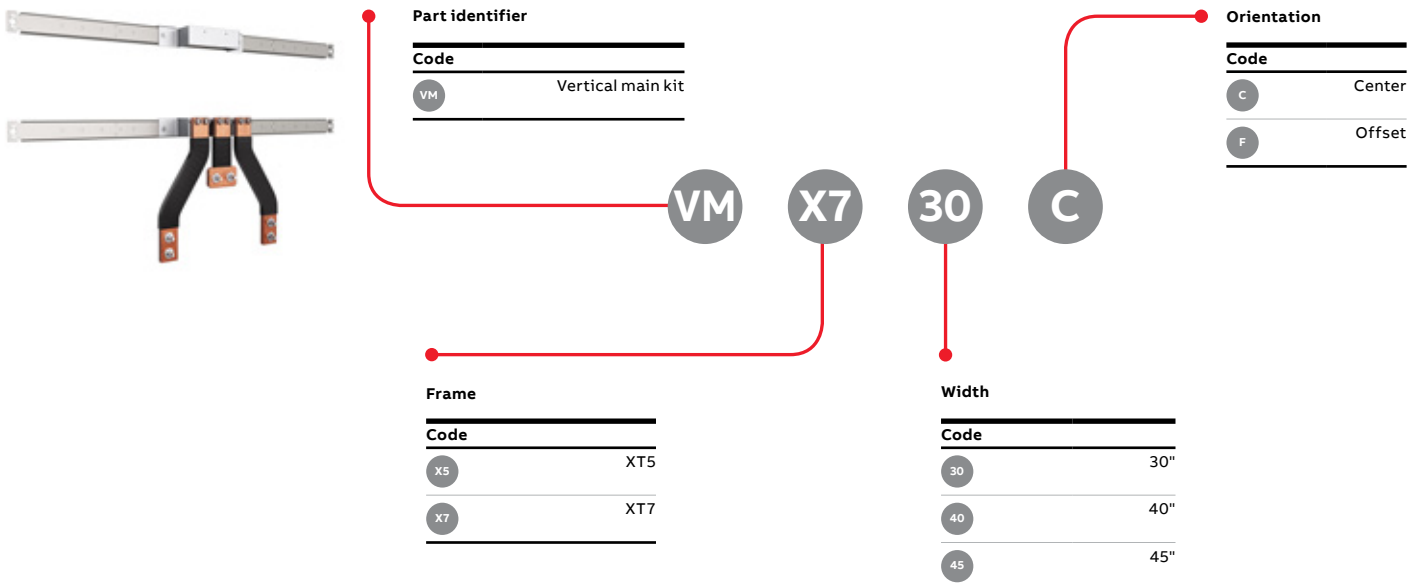
- SR1XBF for 1 single XT1
- SR2XBF for 2 adjacent XT1
- SR5XBF for 5 adjacent XT1

Catalog number scheme

Barrier post

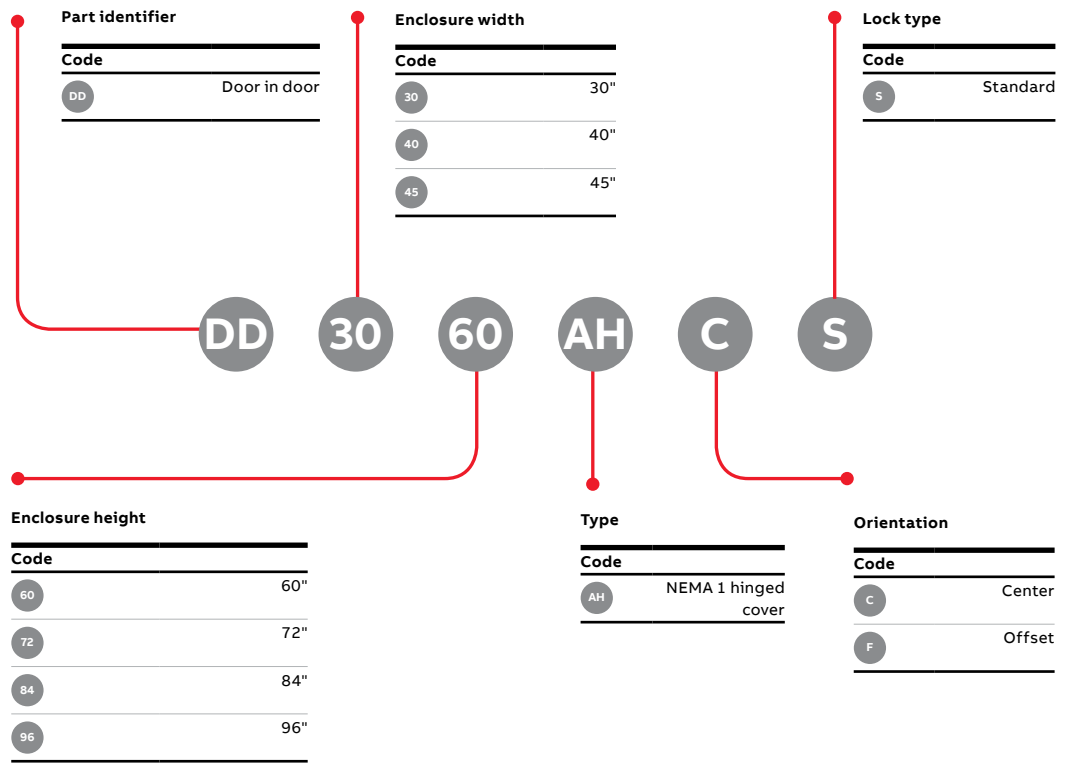


Vertical main kits

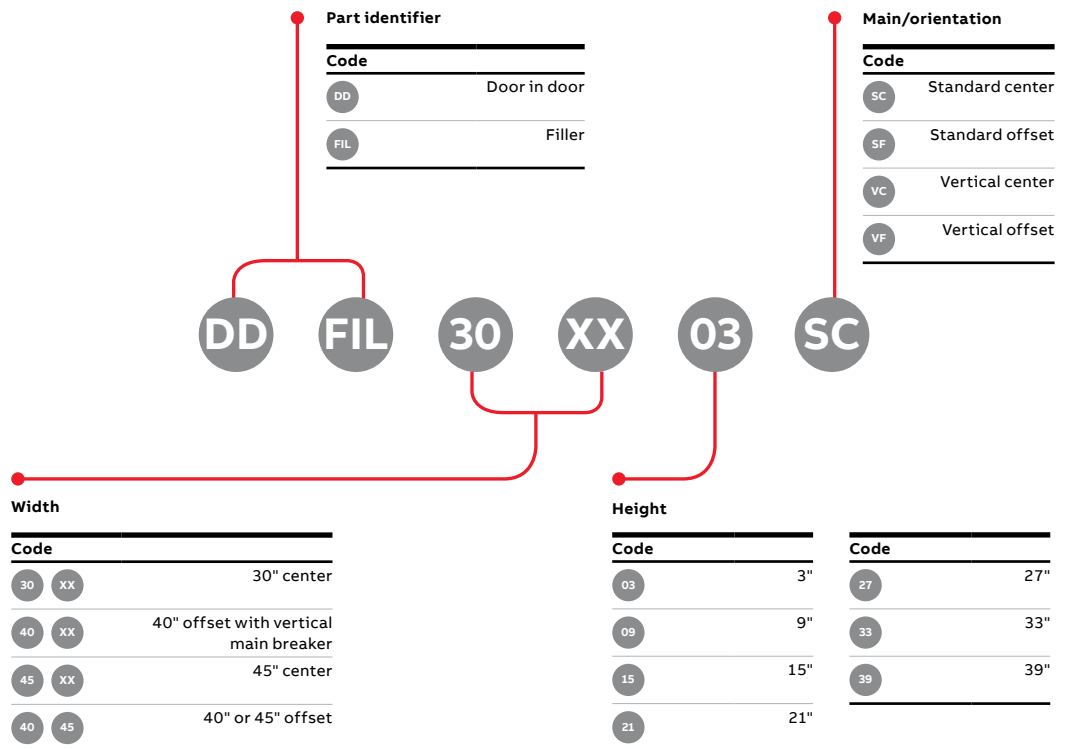


Catalog number scheme

Door-in-door

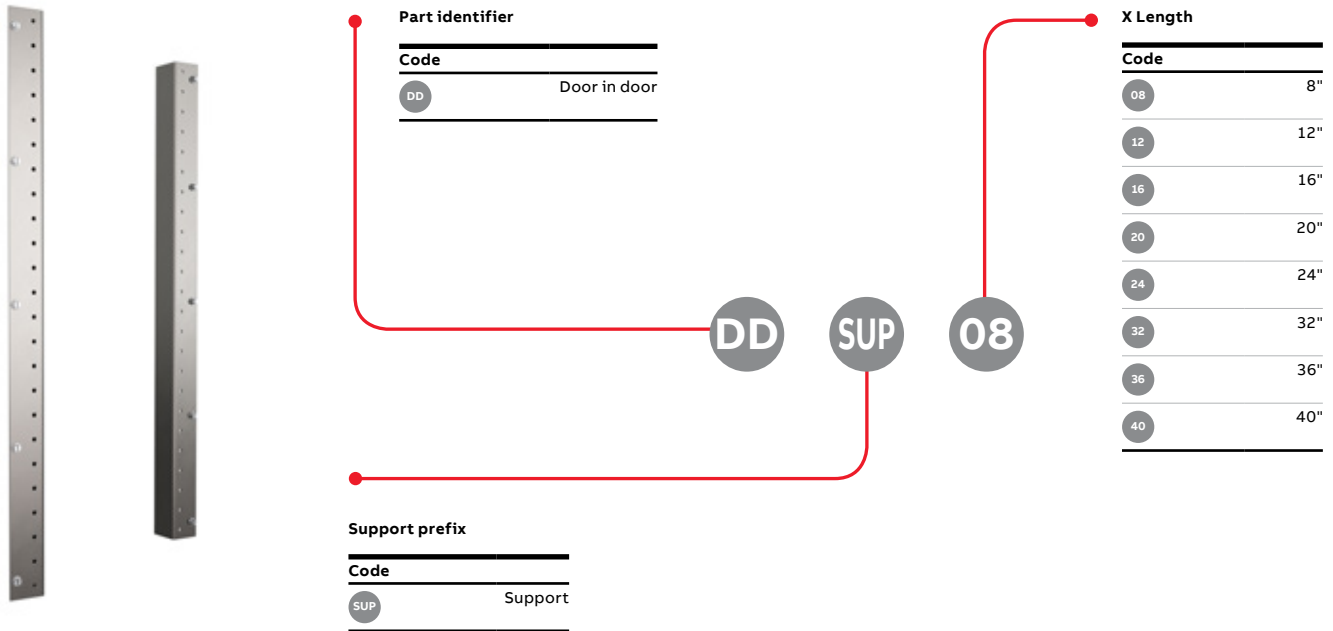


Door-in-door filler

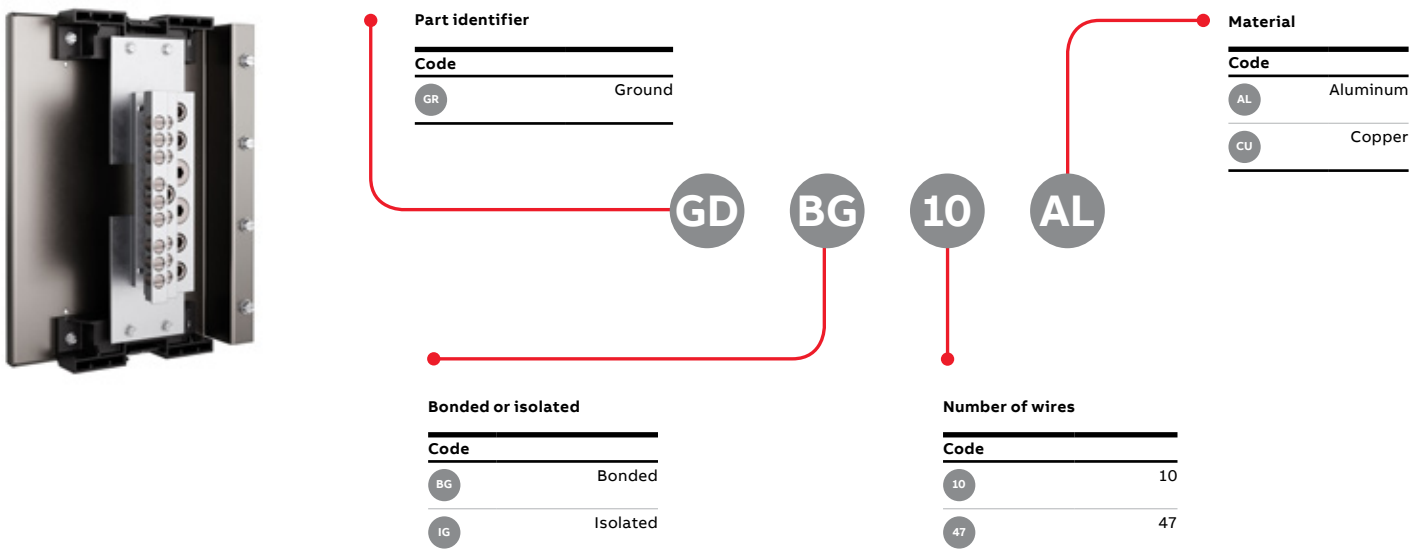


Catalog number scheme

Door-in-door filler support

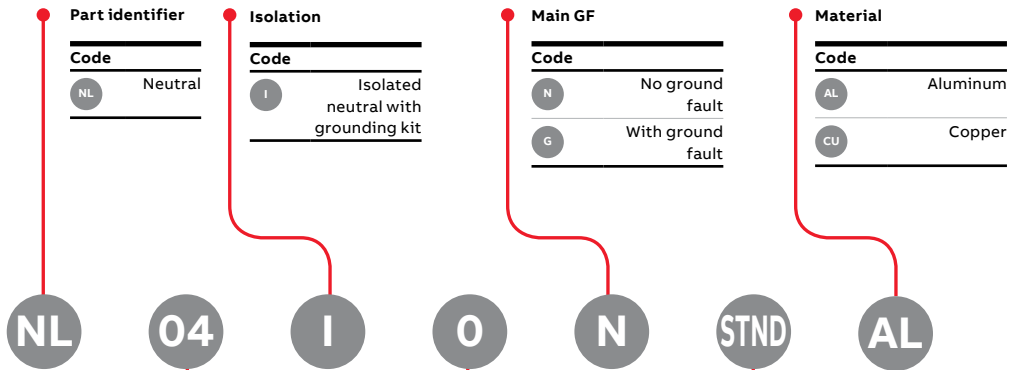


Grounds



Catalog number scheme

Neutrals



Part identifier

Code	Description
NL	Neutral

Isolation

Code	Description
I	Isolated neutral with grounding kit

Main GF

Code	Description
N	No ground fault
G	With ground fault

Material

Code	Description
AL	Aluminum
CU	Copper

Ampacity

Code	Ampacity	Code	Ampacity
02	250 A	08	800 A
04	400 A	10	1000 A
06	600 A	12	1200 A

Number of GF feeders

Code	Number of GF feeders
0	0

Main type

Code	Description	Code	Description
STND	Standard neutral	TX7T/B	XT7 main, 750 kcmil (GF) top/bottom
7X7X	750 kcmil lugs, no GF	V47T/B	Vert. main, 750 kcmil (no GF) top/bottom
COMP	Comp main lugs	D240	200% dual main lugs, 40" wide panel
DCOM	Dual mech lugs, 500 kcmil	D245	200% dual main lugs, 45" wide panel
D5X7	Dual mech lugs, 750 kcmil	M240	200% main lugs, 40" wide panel
XT4T/B	XT4 main (GF) top/bottom	M245	200% main lugs, 45" wide panel
XT5T/B	XT5 main (GF) top/bottom		
5XT7/B	XT7 main, 500 kcmil (GF) top/bottom		

Note 1: All neutrals include a bonding kit
 Note 2: Neutral compression lugs required

Neutral compression lugs



Part identifier

Code	Description
LGN	Neutral compression lug



Wire size

Code	Wire size
010	1/0
020	2/0
030	3/0
040	4/0
250	250 kcmil
300	300 kcmil
350	350 kcmil
400	400 kcmil
500	500 kcmil
600	600 kcmil
750	750 kcmil

Catalog number scheme

Service entrance barrier



Part identifier

Code	
SB	Service entrance barrier

Number of poles

Code	
P3	3
P2	2

SB X4 W35 P3

Breaker frame

Code	
X4	XT4
X5	XT5
X6	XT6
X7	XT7

Wire size

Code	
W30	300 kcmil
W35	350 kcmil
W40	400 kcmil
W50	500 kcmil
W75	750 kcmil

Surge protection device (SPD)



Part identifier

Code	
SP	SPD

Disconnect device

Code	
XT4	XT4

SP 120 Y 06 X4 01

SPD type

Code	
01	Type 1
02	Type 2

Voltage type

Code	
120 Y	120 V AC Wye
277 Y	277 V AC Wye
347 Y	347 V AC Wye
480 D	480 V AC Delta

Impulse current

Code		Code	
06	65 kA	15	150 kA
08	80 kA	20	200 kA
12	125 kA	30	300 kA

Catalog number scheme

RELT



Part identifier

Code	
RT	RELT

RT

04

A

Voltage

Code	
A	120/240 V, 208/120 V and 240 V Delta
B	480 V, 480 V Delta and 480/277
C	600 V, 600 V Delta and 600/347

Enclosure width

Code	
04	40"-45"

Notes:

RELT is available for the 40"W and 45"W enclosures only.

When RELT is selected:

- For XT7, Ekip supply and Ekip signalling 2k are also required.
- For XT5, Ekip signalling 1K is also required.

Wire connector kit for RELT module



Part identifier

Code	
CN	Wire connector kit

CN

001

For use with

Code	
001	XT7 vertical main
003	XT7 main (VR or HR)

Catalog number scheme

Single-point metering – AMP1



Part identifier

Code	
MT	Single-point metering – AMP1

Meter options

Code	
AP	Pulse
AM	AMP1, Modbus
AD	AMP1, Modbus data log
AB	AMP1, BACnet

Enclosure width

Code	
04	40"–45"

MT 04 AP

Note: Please also select a current transformer kit and a mounting kit.

Meter current transformer kit



Part identifier

Code	
MT	Meter current transformer kit

Ampacity

Code	
02	250 A
04	400 A
06	600 A
08	800 A
10	1000 A
12	1200 A

Meter used

Code	
A	AMP1

Phase

Code	
03	3-phase

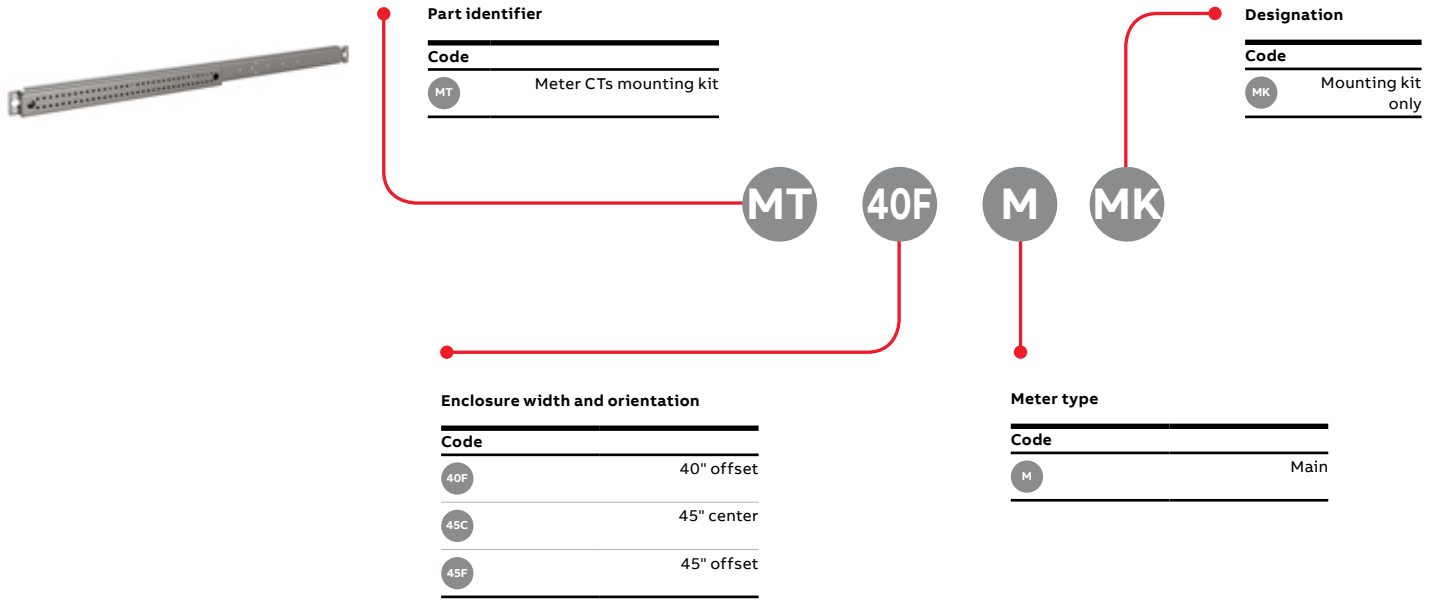
CT designation

Code	
CT	For CTs only

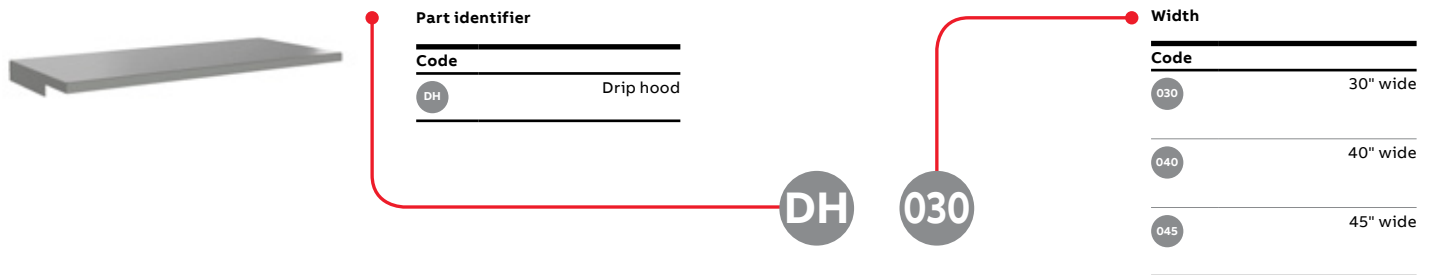
MT A 03 02 CT

Catalog number scheme

Meter CTs mounting kit



Drip hood



Additional information

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US

ABB Inc.
305 Gregson Drive
Cary, NC 27511

solutions.abb/reliagearnext