

CUSTOMER MIGRATION GUIDE

Spectra™ to SACE® Tmax® XT molded case circuit breakers



SACE® Tmax® XT overview

Break new ground

Help make your business more competitive with an innovative MCCB that allows you to save costs and time, from planning to execution.

Save money by selecting only what you need for your application:

- Thermomagnetic trip units up to 800 A
- Advanced features and protections
- Embedded functionalities and accessories that help reduce the number of external components
- Seven native communications protocols
- Connectivity to ABB Ability™ Energy and Asset Manager

With seven frame sizes and a comprehensive trip unit offering, SACE Tmax XT MCCBs are designed for flexibility, integration and connectivity. Select and order the right products for your application with this quick reference table.



SACE® Tmax® XT application guide

Common applications	Available SACE Tmax XT frames	SACE Tmax XT breaker	ReliaGear neXT breaker	Line side connection / termination	Load side connection / termination	Enclosure	Tips
Enclosed circuit breakers	All frames	✓	–	Lugs	Lugs	✓	Fully assembled enclosed breaker also available in empower configurator.
ReliaGear™ lighting panel	XT1, XT4, XT5, XT6 (XT2 coming soon)	✓	–	Breaker kit	Lugs	–	Line vs load side lugs dictated by panel top/bottom feed.
ReliaGear™ neXT power panel	XT1*, XT4, XT5, XT6, XT7 (XT2 coming soon)	–	✓	–	–	–	ReliaGear neXT breakers come with factory-installed plug-in line side connectors; load side lugs; and required filler plates. You must purchase this version for use in ReliaGear neXT power panelboard and ReliaGear SB switchboard feeders.
ReliaGear® SB switchboard feeder	XT1*, XT4, XT5, XT6, XT7 (XT2 coming soon)	–	✓	–	–	–	ReliaGear neXT breakers come with factory-installed plug-in line side connectors; load side lugs; and required filler plates. You must purchase this version for use in ReliaGear neXT power panelboard and ReliaGear SB switchboard feeders.
Spectra™ bolt-on panelboard or switchboard	XT1, XT4, XT5, XT7**	✓	–	SBO retrofit kit	Lugs	–	Designed to help extend the life of your Spectra bolt-on panelboard or switchboard.
OEM business	All frames	✓	–	Per application	Per application	–	–

* 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

** All frames require **Tmax XT retrofit kit for Spectra panelboard and switchboard**



Migration from Spectra™ to SACE® Tmax® XT

Combining ABB and GE Industrial Solutions leading-edge technologies offers you a new, comprehensive, one-line construction package.



As part of ABB's continuing development of a new, leading-edge and comprehensive one-line construction package, the Spectra RMS and RMS with microEntelliGuard® technology has been retired and replaced by SACE Tmax XT circuit breakers.

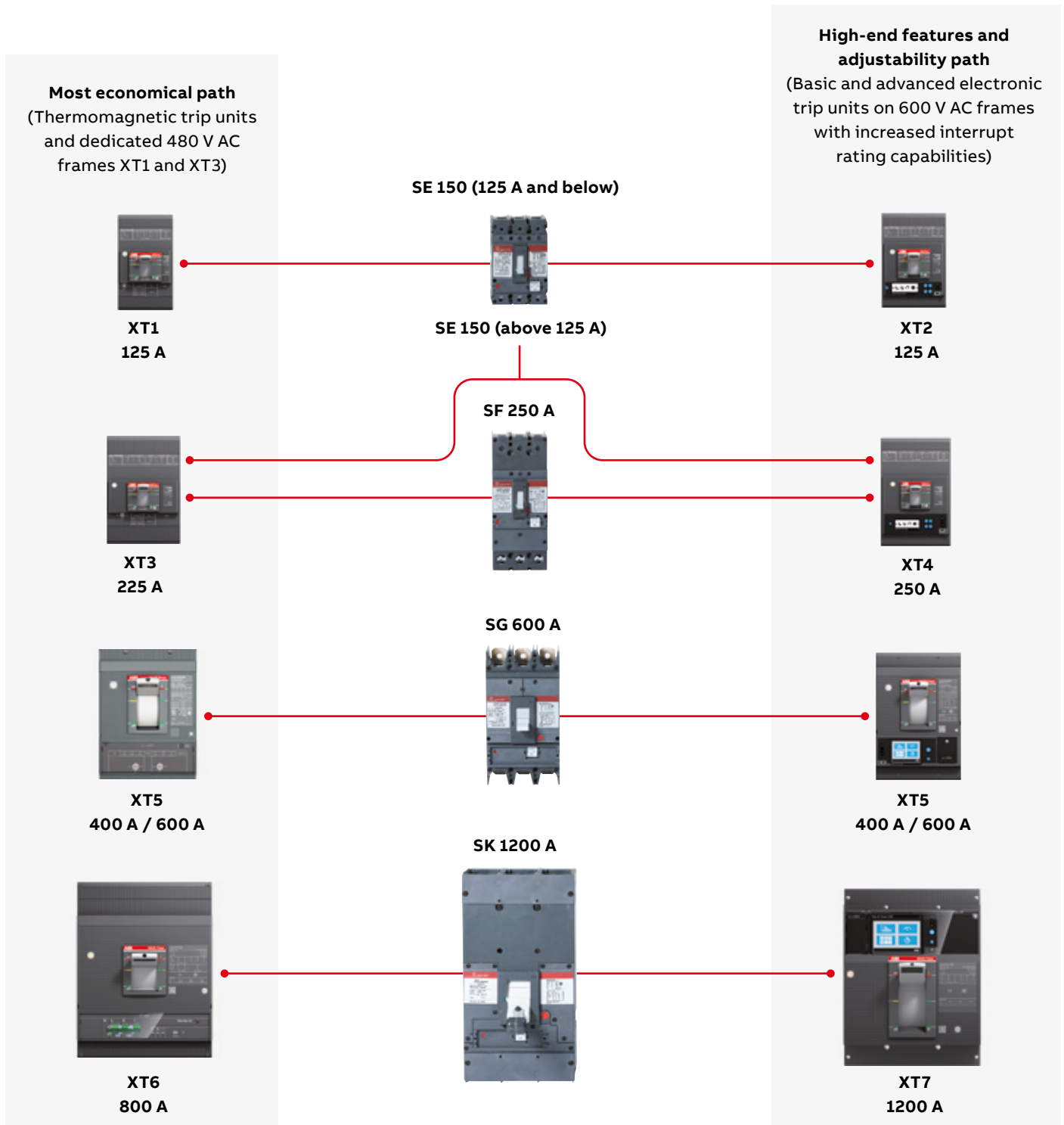
To help you use Tmax XT breaker capabilities within ABB's distribution equipment, this document will guide you through the Tmax XT frames and common accessories and explain how they compare to Spectra. As you can see on the next page, Tmax XT offers you two different paths to optimize your design — one path that offers you the most economical options, such as thermomagnetic trip units and dedicated frames for 480 V AC, and another path that offers you high-end features, adjustability and increased SCCR.

Based on your systems requirements and your preferred path, you may use the following resources to ensure you select the best Tmax XT for your application:

- **Electrification webpage**: Easy access to Tmax XT tools and publications
- **BuyLog**: Overall product offering and technical information to help you select what you need
- **Stocking guide**: Know what ABB stocks to support you with quicker turnarounds

Selecting the right SACE® Tmax® XT frame based on your Spectra™ frame

Select what you need, skip what you don't









Notes: Always consider which rating plug you would use with Spectra in your application. There may be opportunities to reduce a frame size with SACE Tmax XT.

Accessories







Common Spectra accessories

Provided here for reference only to support selection of proper SACE Tmax XT accessory (Spectra series has been phased out).

	Group	Type	Voltage	SE	SF
	Lugs	1-piece kit	–	TCAL18 (12–3/0 AWG Cu/Al)	TCAL29 (8 AWG–350 kcmil Cu/Al)
	Auxiliary contacts	Bell alarm	120–240 V AC / 48–125 V DC	SABAP1	SABAP1
		1 AB element	120–240 V AC / 48–125 V DC	SAUXPAB1	SAUXPAB1
		2 AB elements	120–240 V AC / 48–125 V DC	SAUXPAB2	SAUXPAB2
	Shunt trip	Pre-cabled	120 V AC / 125 V DC	SAST1	SAST1
		Pre-cabled	240 V AC / 250 V DC	SAST2	SAST2
		Pre-cabled	24 V DC	SAST3	SAST3
	Undervoltage release	Pre-cabled	120 V AC / 125 V DC	SAUV1	SAUV1
		Pre-cabled	240 V AC / 250 V DC	SAUV2	SAUV2
		Pre-cabled	24 V DC	SAUV3	SAUV3
	Fixed padlock	Open/closed position	–	SEPLD	SEPLD
	Mounting hardware	Mounting hardware for Spectra™ bolt-on power panelboards	–	AMCB6EBFP	AMCB6FJFP
			–	–	AMCB3FJFP

Common SACE Tmax XT accessories

Many more accessories are available. You may find them in our Buylog or in our empower configurator.

	Group	Type	Voltage	XT1	XT2
	Lugs	3-piece kits	–	KXT1CU-3PC (14–1/0 AWG Cu) KXT1CUAL1-3PC (10–2/0 AWG Cu/Al)	KXT2CUAL1-3PC (14–1/0 AWG Cu/Al) KXT2CUAL2-3PC (10–2/0 AWG Cu/Al)
	Auxiliary contacts	AUX-C 1 Q +1 SY ¹	250 V	KXTAAXCQSYFP	KXTAAXCQSYFP
		AUX-C 2 Q +1 SY ¹	250 V	KXTAAXC2QSYFP	KXTAAXC2QSYFP
		AUX-C 1 Q +1 SY ¹	24 V DC	KXTAAXCDQSYFP	KXTAAXCDQSYFP
		AUX-C 3 Q + 1 SY ¹	24 V DC	–	KXTDAXCD3QSYFP
		AUX 4Q ²	24 V DC	–	–
		AUX 4Q ²	400 V	–	–
		AUX 1 SY ¹	24 V DC	–	–
	Shunt trip	Pre-cabled (except for XT7)	24 V DC	KXTASORCFPB	KXTASORCFPB
		Pre-cabled (except for XT7)	110 V	KXTASORCFPD	KXTASORCFPD
		Pre-cabled (except for XT7)	220 V	KXTASORCFPE	KXTASORCFPE
	Undervoltage release	Pre-cabled (except for XT7)	24 V DC	KXTAUVRCFP1	KXTAUVRCFP1
		Pre-cabled (except for XT7)	110 V	KXTAUVRCFP4	KXTAUVRCFP4
		Pre-cabled (except for XT7)	220 V	KXTAUVRCFP5	KXTAUVRCFP5
	Fixed padlock	Open position	–	KXTBPLLOP	KXTCPLOP
		Open/closed position	–	KXTBPLOPCL	KXTCPLOPCL
	Retrofit kit ²	Tmax® XT retrofit kit for Spectra™ bolt-on panelboards ³	–	SRFB6XT1FPX	–
			–	–	–

¹ Q = indication of the status of the circuit-breaker power contacts

SY = bell alarm

² Maximum of two SACE Tmax XT4, XT5 or XT7 retrofit kits can be installed side by side in an existing Spectra power panelboard installation

³ If Kirk provisions are required, replace the "X" (last digit) with "K" (example: SRFB6XT1FPX becomes SRFB6XT1FKP)

⁴ XT7 breaker handle extension included in this kit

SG	SK
TCLK365 (2/0 AWG–500 kcmil Cu/Al) 3-piece kit	TCAL81 (3x 3/0 AWG–500 kcmil Cu/Al) TCAL125 (4x 250–500 kcmil Cu/Al)
SABAP1	SABAP1
SAUXPAB1	SAUXPAB1
SAUXPAB2	SAUXPAB2
SAST1	SAST1
SAST2	SAST2
SAST3	SAST3
SAUV1	SAUV1
SAUV2	SAUV2
SAUV3	SAUV3
SGPLD	SKPLD
AMCB6GBFP	AMCB3KMFP
AMCB3GMFP	-

XT3	XT4	XT5	XT6	XT7
KXT3CUAL1-3PC (14–1/0 AWG Cu/Al) KXT3CUAL2-3PC (4 AWG–300 kcmil Cu/Al)	KXT4CUAL1-3PC (14–1/0 AWG Cu/Al) KXT4CUAL2-3PC (4 AWG–300 kcmil Cu/Al) KXT4CUAL3-3PC (3/0 AWG–350 kcmil Cu/Al)	KXT5CUAL350K-3PC (6 AWG–350 kcmil Cu/Al) KXT5CUAL500K-3PC (250–500 kcmil Cu/Al) KXT5CUAL2X500K-3PC (2x 2/0 AWG–500 kcmil Cu/Al)	KXT6CUAL2X500K-3PC (2x 250–500 kcmil Cu/Al) KXT6CUAL3X400K-3PC (3x 2/0 AWG–400 kcmil Cu/Al)	KXT7CUAL4X500K-3PC (4x 4/0 AWG–500 kcmil Cu/Al) KXT7CUAL3X750K-3 (3x 500–750 kcmil Cu/Al)
KXTAAXCQSYFP	KXTAAXCQSYFP	KXTAAXCQSYFP	KXTAAXCQSYFP	-
KXTAAXC2QSYFP	KXTAAXC2QSYFP	KXTAAXC2QSYFP	KXTAAXC2QSYFP	-
KXTAAXCDQSYFP	KXTAAXCDQSYFP	KXTAAXCDQSYFP	KXTAAXCDQSYFP	-
-	KXTDAXCD3QSYFP	KXTDAXCD3QSYFP	KXTDAXCD3QSYFP	-
-	-	-	-	ZE1AUX4D
-	-	-	-	ZE1AUX4
-	-	-	-	ZE1BAD
-	-	-	-	ZE1BA
KXTASORCFPB	KXTASORCFPB	KXTASORCFPB	KXTASORCFPB	ZEASA
KXTASORCFPD	KXTASORCFPD	KXTFYOCFPD	KXTFYOCFPD	ZEASE
KXTASORCFPE	KXTASORCFPE			ZEASG
KXTAUVRCFP1	KXTAUVRCFP1	KXTFYUC1	KXTFYUC1	ZEUAU
KXTAUVRCFP4	KXTAUVRCFP4	KXTFYUC4	KXTFYUC4	ZEAEU
KXTAUVRCFP5	KXTAUVRCFP5	KXTFYUC5	KXTFYUC5	ZEAGU
KXTBPLLOP	KXTCPLOP	KXT5PLOP	KXT6PLOP	KXT7PLOP
KXTBPLLOPCL	KXTCPLOPCL	KXT5PLOPLC	KXT6PLOPLC	-
-	SRFB6XT4FPX	SRFB6XT5BFPX	-	SRFB3XT7MFPX0 ⁴
-	SRFB3XT4FPX	SRFB3XT5MFPX	-	-

SACE® Tmax® XT MCCBs main characteristics

SACE Tmax XT range performance

		XT1	XT2	XT3	XT4	XT5	XT6	XT7
Frame size (A)		125	125	225	250	600	800	1200
Poles		3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4
Interrupt rating (kA)	240 V AC	50, 65, 100	65, 100, 150, 200	50, 65	65, 100, 150, 200	65, 100, 150, 200	65, 100, 200	65, 100, 200
	480 V AC	25, 35, 65	25, 35, 65, 100, 150, 200	25, 35	25, 35, 65, 100, 150, 200	35, 50, 65, 100, 150, 200	35, 50, 65	50, 65, 100
	600 V AC	–	18, 22, 25, 35, 42	–	18, 22, 25, 50, 65, 100	18, 25, 35, 65, 100	20, 25, 35	25, 50, 65
Dimensions (in.) (W x D x H)	3-poles breaker	3 x 2.75 x 5.12	3.54 x 3.25 x 5.12	4.13 x 2.75 x 5.90	4.13 x 3.25 x 6.3	5.51 x 4.07 x 8.07	8.27 x 4.07 x 10.55	8.27 x 6.57 x 10.55
	Packaging	5.04 x 5.63 x 5.31	5.12 x 5.71 x 8.19	6.10 x 7.48 x 7.48	5.71 x 6.61 x 8.27	9.76 x 11.22 x 9.45	12.01 x 14.57 x 11.22	11.02 x 14.17 x 13.78
Trip units	TMF	✓	✓	✓	✓	–	–	–
	TMA	–	✓	–	✓	✓	✓	–
	Ekip DIP	–	✓	–	✓	✓	✓	✓
	Ekip	–	✓	–	✓	✓	–	✓
	Touch	–	–	–	–	–	–	–

SACE Tmax XT range trip units capabilities

Features	Thermomagnetic trip units		Electronic trip units	
	TMF	TMA	Ekip DIP (LS/I, LIG, LSI and LSIG)	Ekip Touch, Touch measuring and Hi-Touch (LSI and LSIG)
Overload (L) and Instantaneous (I) protection	✓	✓	✓	✓
Ground fault protection (G)	–	–	X (with LSIG)	X (with LSIG)
Selective short circuit protection (S)	–	–	X (with LS/I ¹ , LSI or LSIG)	✓
L protection adjustability (I1)	Fixed	0.7–1 x In*	0.4...1.0 x In Steps of 0.04 (LS/I) or 0.02 (LSI/LSIG)	0.4...1.0 x In Steps of 0.001 x In
S protection adjustability (I2) ²	–	–	Off, 1...10 x In Steps of 0.5 x In ³	Off, 0.6...10 x In Steps of 0.1 x In
I protection adjustability (I3) ²	Fixed	5–10 x In	1...10 x In Steps of 0.5 x In ³	1.5...10 x In (15 x In for XT7) Steps of 0.1 x In
G protection adjustability (I4) ²	–	–	Off, 0.2, 0.25, 0.45, 0.55, 0.75, 0.80 and 1 x In	Off, 0.1...1 x In 0.001 x In
Communication	–	–	–	0
Cloud connectivity	–	–	–	0
Bluetooth ⁴ connectivity	–	–	–	✓
Current measurements	–	–	–	✓
Voltage, power and energy measurements	–	–	–	X (with Ekip Touch measuring)
Voltage, power and energy measurements and protections	–	–	–	X (with Ekip Hi-Touch)
Embedded functions	–	–	–	0
RELT (reduced energy let-through feature)	–	–	–	0
Event recorder, contact wear information and self-diagnosis	–	–	–	✓

Legend

– Not a possible feature

✓ Included

0 Optional

* In = Trip unit sensor

¹ Either S or I must be selected during commissioning

² Valid for Tmax XT1-6. For Tmax XT7, please refer to Tech Catalog

³ 4, 5, 6 and 9.5 x In not available

⁴ Bluetooth is a trademark of Bluetooth SIG, Inc.

Spectra™ MCCBs main characteristics

For reference (Spectra has been phased out)

Spectra range performance

		SE frame	SF frame	SG frame	SK frame
Frame size (A)		150	250	600	1200
Poles		2, 3	2, 3	2, 3	2, 3
Interrupt ratings (kA)	240 V AC	18, 65, 100, 200	65, 100, 200	65, 100, 200	65, 100, 200
	480 V AC	18, 25, 65, 100	35, 65, 100	35, 65, 100	50, 65, 100
Dimensions (in.)	600 V AC	14, 18, 25	22, 25, 25	25, 65	25, 42, 65
	3-pole breaker	4.12 x 3.38 x 6.31	4.12 x 3.81 x 10.12	5.5 x 3.81 x 10.09	8.25 x 5.5 x 15.5
(W x D x H)	Packaging Spectra™ RMS	6.63 x 6.19 x 7.13	7.06 x 7.38 x 10.63	9.5 x 8.13 x 11.13	11.19 x 9 x 17
	Packaging Spectra™ MET	-	-	9.5 x 8.13 x 15.31	11.19 x 9 x 23.88
Trip units	RMS	✓	✓	✓	✓
	microEntelliGuard®	-	-	✓	✓

Spectra trip unit capabilities

Features	RMS	microEntelliGuard®
Overload (L) and Instantaneous (I) protection	✓	✓
Ground fault protection (G)	-	O
Selective short circuit protection (S)	✓	✓
L protection adjustability (C)	As per available rating plugs (RP)	0.5...1.0 x RP Steps of 0.05 x RP
S protection adjustability	Tracking short-time proportional to I, starting at around 60% x I	Off, 1.5...9.0 x C Steps of 0.5 x C
I protection adjustability	SE: 2.9, 3.7, 4.7, 5.9, 7.7, 9.9 or 12.5 x RP ¹	SG: 2.0...10.0 x breaker sensor
	SF: 3.0, 3.8, 4.8, 6.0, 7.8 or 10 x RP ¹	SK: 2.0...17.0 x breaker sensor
	SG: 3.0, 3.8, 4.8, 6.0, 7.8 or 10.1 x RP ¹	Steps of 0.5 x breaker sensor
G protection adjustability	SK: 3.1, 3.8, 4.8, 6.1, 8.0 or 10.1 x RP ¹	0.4...1.0 x breaker sensor
		Steps of 0.01 x breaker sensor
Communication	-	O (Modbus RTU only)
Cloud connectivity	-	-
Bluetooth ³ connectivity	-	-
Current measurements	-	✓
Voltage, power and energy measurements	-	O ²
Voltage, power and energy measurements and protections	-	-
Embedded functions	-	-
RELT (reduced energy let-through feature)	-	O
Event recorder, contact wear information and self-diagnosis	-	-

Legend

- Not a possible feature

✓ Included

O Optional

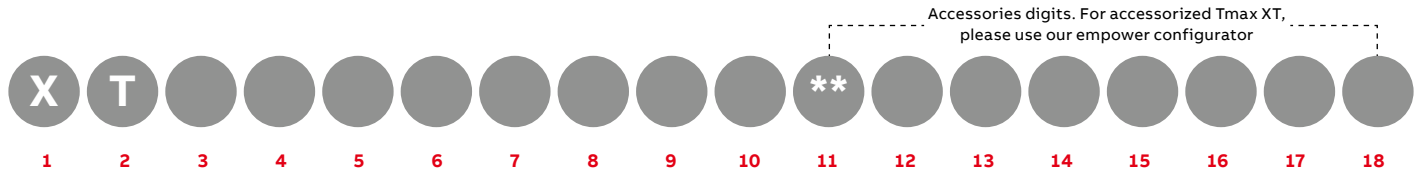
¹ Values may vary depending on rating plug and frame rating

² Proper operation of the advanced metering function requires multiple system accessories including power supplies, voltage conditioners, junction boxes and interconnect cables

³ Bluetooth is a trademark of Bluetooth SIG, Inc.

SACE® Tmax® XT molded case circuit breakers

Product ordering number structure



1 & 2 Version

Digit
X T

3 Frame

Digit
1 2 3 4 5 6 7

4 Interrupting ratings – 480 V AC*

Digits	XT1	XT2	XT3	XT4	XT5	XT6	XT7
N	25	25	25	25	35	35	–
S	35	35	35	35	50	50	50
H	65	65	–	65	65	65	65
L	–	100	–	100	100	–	100
V	–	150	–	150	150	–	–
X	–	200	–	200	200	–	–

5 Standard UL and IEC

Digit	
U	UL 80%
Q	UL 100%
C	UL 80% + CCC
D	UL 100% + CCC
E	IEC only
S	IEC 50 °C

6 Number of poles

Digit	
2	2 Poles
3	3 Poles
4	4 Poles 100%
N	4 Poles 50% (IEC only)

7, 8, 9 Frame amps

XT1–4		XT5–7	
Digits	Amps	Digits	Amps
0 1 0	10	2 5 A	250 (XT5)
0 1 5	15	3 0 A	300 (XT5)
0 2 0	20	3 2 A	320 (XT5 IEC ¹)
0 2 5	25	4 0 A	400 (XT5)
0 3 0	30	5 0 B	500 (XT5)
0 3 5	35	6 0 B	600 (XT5)
0 4 0	40	6 0 O	600 (XT6)
0 4 5	45	6 0 C	600 (XT7)
0 5 0	50	6 3 B	630 (XT5 IEC ¹)
0 6 0	60	6 3 O	630 (XT6 IEC ¹)
0 7 0	70	8 0 O	800 (XT6)
0 8 0	80	8 0 C	800 (XT7)
0 9 0	90	1 K O	1000 (XT6 IEC ¹)
1 0 0	100	1 0 D	1000 (XT7)
1 1 0	110	1 2 E	1200/1250 (XT7)
1 2 5	125	1 6 F	1600 (XT7 IEC ¹)
1 5 0	150		
1 7 5	175		
2 0 0	200		
2 2 5	225		
2 5 0	250		

10 Trip unit

Digit	
A	TMF/TMD
B	TMA
C	Ekip DIP LISI
D	MCS
E	Ekip DIP LS/I
F	Ekip DIP LSI
G	Ekip DIP LSIG
J	Ekip DIP I
K	Ekip DIP M-I
L	Ekip DIP M-LIU
M	MA (MCP)
N	TMG
P	Ekip Touch LSI
Q	Ekip Touch LSIG
R	Ekip Touch Measuring LSI
S	Ekip Touch Measuring LSIG
T	Ekip Hi-Touch LSI
U	Ekip Hi-Touch LSIG
W	Ekip M Touch LRIU
X	Ekip G DIP LS/I
Y	Ekip G Touch LSIG
Z	Ekip G Hi-Touch LSIG



** Must be "Y" for ReliaGear neXT breakers, used in ReliaGear neXT power panelboards and ReliaGear SB switchboards.

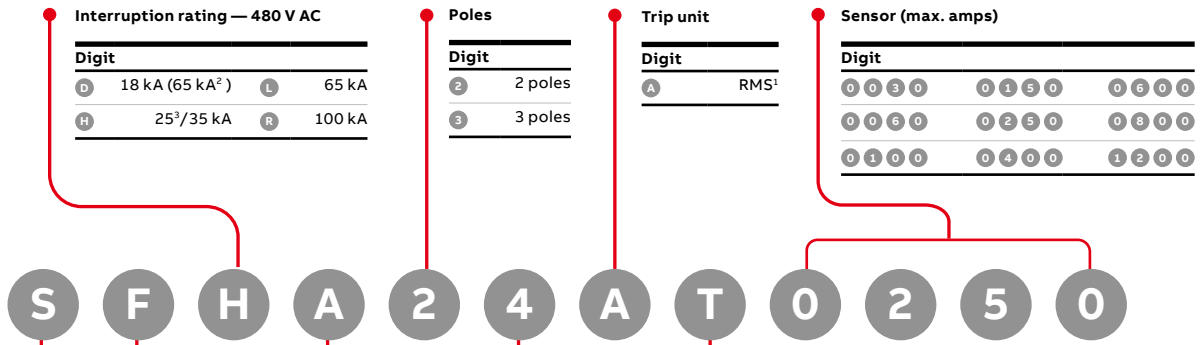
* For 240 V AC and 600 V AC ratings, refer to Tmax XT UL Technical Catalog.

¹ IEC only.

This ordering code structure is meant for field identification of a SACE Tmax XT. For a breaker selection, please refer to Buylog, Technical Catalog or empower configurator.

Spectra™ RMS and RMS with microEntelliGuard® molded case circuit breakers

Product ordering number structure



Family

Digit	
S	Spectra™

Frame rating

Digit	
E	150 A
F	250 A
G	600 A
K	1200 A

Continuous load rating

Digit	
A	Standard
H	100%
L	100%
R	100%

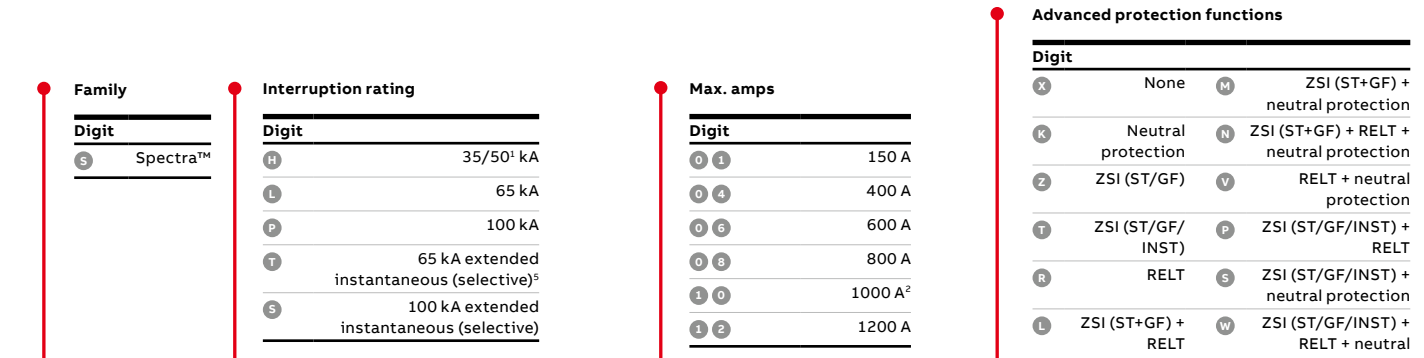
Voltage rating

Digit	
2	240 V
4	480 V
6	600 V

Trip function

Digit	
T	LSI ¹

¹Adjustable instantaneous with tracking short time (long time established via interchangeable rating plugs)
² SGD rated 65 kA for 240 V (SG frame)
³ 25 kA for SE frame



Family

Digit	
S	Spectra™

Interruption rating

Digit	
H	35/50 ¹ kA
L	65 kA
P	100 kA
T	65 kA extended instantaneous (selective) ⁵
S	100 kA extended instantaneous (selective)

Max. amps

Digit	
0 1	150 A
0 4	400 A
0 6	600 A
0 8	800 A
1 0	1000 A ²
1 2	1200 A

Advanced protection functions

Digit			
X	None	M	ZSI (ST+GF) + neutral protection
K	Neutral protection	N	ZSI (ST+GF) + RELT + neutral protection
Z	ZSI (ST/GF)	V	RELT + neutral protection
T	ZSI (ST/GF/INST)	P	ZSI (ST/GF/INST) + RELT
R	RELT	S	ZSI (ST/GF/INST) + neutral protection
L	ZSI (ST+GF) + RELT	W	ZSI (ST/GF/INST) + RELT + neutral protection

Frame

Digit	
G	600 A
K	1200 A

Continuous load rating

Digit	
C	Standard
H	100%
L	100%
P	100%
S	100%
T	100%

Poles

Digit	
3	3 poles

Voltage rating

Digit	
6	600 V
4	480 V ⁵

Trip function

Digit	
L 3	LSI ³
L 4	LSIG
L 5	LSIA
L 7	LSI-CP ⁴

Advanced features and metering

Digit	
X	Metering (basic)
2	Metering (basic) + Modbus
6	Metering (adv.) + Modbus
8	Metering (adv.) + Modbus

¹50 kA for SK frames

²Max amps option 10 only available on 100% rated breakers

³Without a control power connection, unless required by advanced protection functions or advanced features and communication

⁴With a control power connection. The only valid trailing product digits for L7 are XX.

⁵SC, SS, TC and TT catalog codes are optimized for selectivity (extended instantaneous) and will carry a 480 V AC max voltage rating



ABB Inc.

305 Gregson Drive
Cary, NC 27511

electrification.us.abb.com

Customer Service:

888-862-3290

abbinsidesalesupport@us.abb.com

Monday–Friday, 7am–5:30pm, Central Time

Technical Support:

888-437-3765

Monday–Friday, 7am–5pm, Central Time

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