

Accessories

Versions and types

3



Fixed circuit breaker

- Tmax XT circuit breakers are available in the following versions:
- **FIXED.** These have a current-interrupting part connected to the trip unit, to be installed on the back plate of the box;
 - **PLUG-IN.** These have a moving part and a fixed part. The latter must be installed on the back plate of the box. The moving part comes in the kit that converts the fixed version into a plug-in version;
 - **WITHDRAWABLE.** These have a moving part and a fixed part, equipped with side runners to allow easy racking in/out of the moving part. The fixed part is installed on the back plate of the box. The moving part comes in the kit that converts the fixed version into a withdrawable version. To create the withdrawable circuit breaker, it's necessary to order a front accessory to maintain the IP40 degree of protection over the circuit breaker's entire isolation run.

If the plug-in circuit breaker is fitted with electrical accessories, appropriate connectors for insulating the corresponding auxiliary circuits must also be ordered. For the withdrawable version, there are dedicated accessories fitted with connectors enabling automatic disconnection when racking-out. (Consult the "Connectors for electrical accessories" section of this chapter). Using the fixed version as a base, SACE Tmax XT circuit breakers can easily be converted into plug-in and withdrawable versions with the appropriate conversion kits. The moving part can always be obtained in the required version, fully pre-engineered in the factory, by ordering the fixed circuit breaker and the conversion kit at the same time.



Plug-in circuit breaker

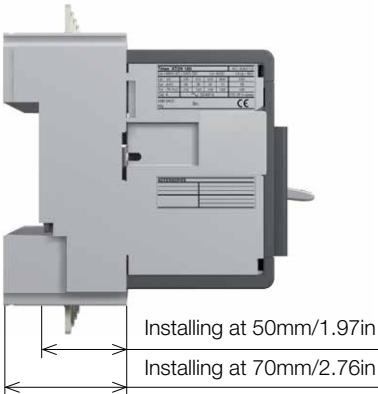
	Version		
	Fixed	Plug-in	Withdrawable
XT1	■	■	
XT2	■	■	■
XT3	■	■	
XT4	■	■	■



Withdrawable circuit breaker

Fixed part of plug-in and withdrawable versions

The fixed parts of the plug-in/withdrawable versions are available with extended front terminals (EF). The fixed parts can be equipped with some of the same terminal, terminal-cover and phase barrier kits used for the fixed circuit breakers, by using the proper adapter. The fixed parts of a plug-in/withdrawable circuit breaker can be installed at a distance of 50mm/1.97in from the back of the panel or at 70mm/2.76in as shown in the picture.





Conversion kit for turning a fixed circuit breaker into the moving part of a plug-in circuit breaker



Conversion kit for turning a fixed circuit breaker into the moving part of a withdrawable circuit breaker



Conversion kit for turning a fixed part of plug-in version into the fixed part of a withdrawable version

Conversion kits

The following conversion kits can be obtained in order to create the different versions:

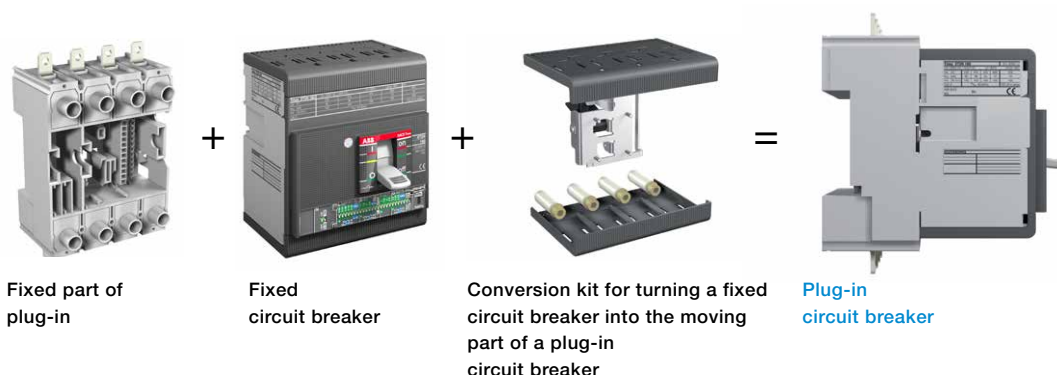
- **Kit for converting the fixed circuit breaker into the moving part of plug-in/withdrawable versions.** When withdrawable versions are made, it is essential to order an accessory to apply to the front of the circuit breaker in order to maintain the IP40 degree of protection over the entire isolation run. This accessory can be chosen from:
 - front for lever operating mechanism (FLD);
 - motor operator (MOE);
 - direct or extended rotary handle operating mechanisms (RHD or RHE).
 If no accessory is indicated, the front for lever operating mechanism (FLD) is automatically included in the order.
 - **Kit for converting the fixed part of plug-in versions into the fixed part of withdrawable versions.** The kit comprises:
 - a guide for turning the fixed part of the plug-in circuit breaker into the fixed part of the withdrawable circuit breaker;
 - a racking-out rotary handle that allows the moving part to be inserted and withdrawn. The mechanism allows the circuit breaker to be set to the isolated position (with the power and auxiliary circuits disconnected) with the compartment door closed, for operator safety. The rotary handle can only be inserted when the circuit breaker is open. Once it has been removed or withdrawn, the circuit breaker can be set to the open/closed position;
 - a flange for the compartment door, which replaces the one supplied with the fixed version of the circuit breaker.
 - **Kit for converting fixed type into the plug-in version for RC Sel residual current devices for XT2-XT4.** RC Sel four-pole residual current devices for XT2 and XT4 can be converted from the fixed version into the plug-in version using the special kit.
 - **Kit for converting plug-in types into the withdrawable version for RC Sel residual current devices for XT2-XT4.** RC Sel four-pole residual current devices for XT2 and XT4 can be converted from the plug-in version to the withdrawable version using the special kit, which comprises a bellows to apply to the front of the residual current device so as to allow it and the residual current part to be withdrawn when the panel door is closed. This kit can also be assembled on fixed circuit breakers fitted with the front part for locks or the direct rotary handle, thus adding to the range of uses for residual current devices.
- In the plug-in to withdrawable conversion kit, there is also a 6-pin connector to be applied onto the right side of the circuit breaker to facilitate disconnecting the auxiliary circuits connected to the residual current device.
- This kit contains also the shunt opening release of the residual current device dedicated to the withdrawable version, which is fitted with a connector for the fixed part and the moving part.

Accessories

Versions and types

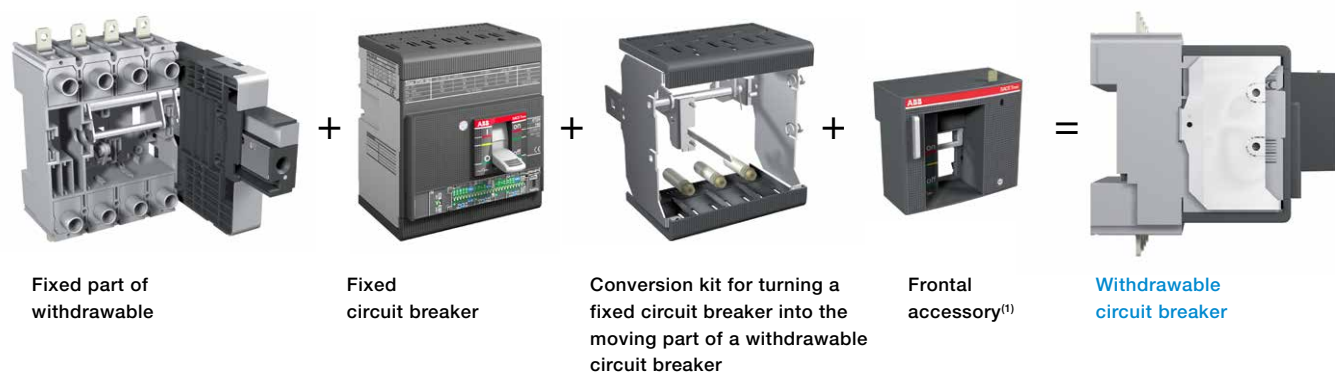
Plug-in version

3

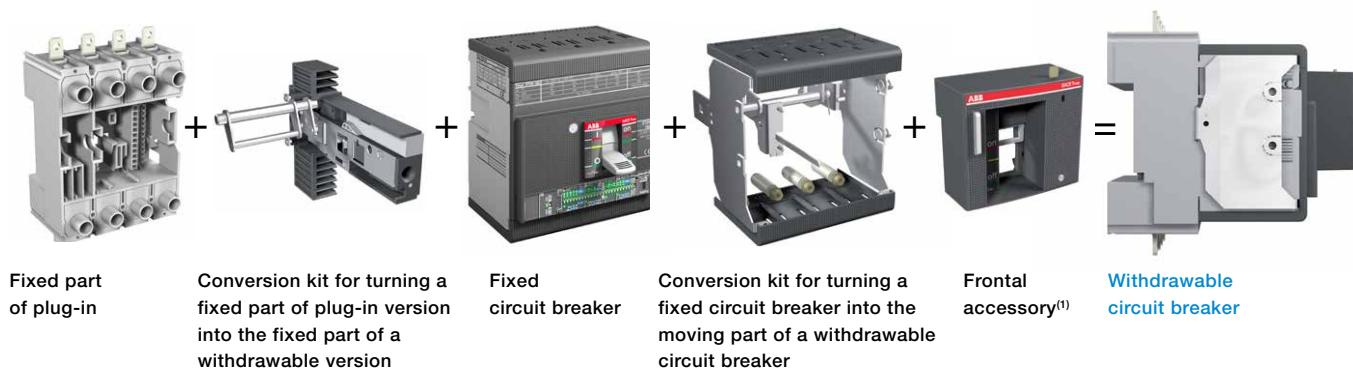


Withdrawable version

1st solution



2nd solution



⁽¹⁾ Frontal accessory is mandatory. If not specified in the order, the FLD is supplied automatically

Accessories

Mechanical accessories

		UL Listed	XT1	XT2	XT3	XT4
Terminals	F - Front terminals	■	■	■	■	■
	EF - Extended front terminals	■	■	■	■	■
	ES - Extended spread terminals	■	■	■	■	■
	FCCu - Front for copper cables	■	■	■	■	■
	FCCuAl - Front for copper/aluminum cables	■	—	—	■	■
	FB - For flexible busbars	—	■	■	■	■
	MC - Multi cable for copper cable	■	■	■	■	■
	R - Rear oriented	—	■	■	■	■
	EF - Extended front for the fixed part	■	■	■	■	■
	HR/VR - Horizontal rear / Vertical rear for fixed part	—	■	■	■	■
	R for RC - Rear for residual current release	—	■	—	■	—
Terminal covers	LTC - Low terminal cover	—	■	■	■	■
	HTC - High terminal cover	■	■	■	■	■
Phase barriers	PB - 25mm/0.98in	■	■	■	■	■
	PB - 100mm/3.94in	■	■	■	■	■
	PB - 200mm/7.87in	■	■	■	■	■
Flange handle operating mechanism	MKC - Cable operated flange handles	■	■	■	■	■
Rotary handle operating mechanism	RHD - Direct rotary handle	■	■	■	■	■
	RHE - Extended rotary handle	■	■	■	■	■
	RHS - Side rotary handle (right and left sides)	■	■	■	■	■
	LH - Long "pistol" rotary handle (for RHE or RHS)	■	■	■	■	■
	RHL - Rotary handle/front lever lock, open	■	■	■	■	■
	RHL - Rotary handle/front lever lock, open/closed	■	■	■	■	■
Front for operating lever mechanism	FLD - Front for locks	■	—	■	—	■
Locks on circuit breaker	PLL - Padlock device, removable	■	■	—	■	—
	PLL - Padlock device, open	■	■	■	■	■
	PLL - Padlock device, open/closed	■	■	■	■	■
	KLC - Key lock, open	■	■	■	■	■
	KLC - Key lock, open/closed	■	■	■	■	■
Mechanical interlock	MIR - Mechanical interlock (HR and VR)	■	■	■	■	■

Connection terminals

Connection terminals allow the circuit breaker to be connected to the system in the way best suited to the installation requirements. By and large, they consist of front terminals for connecting cables or busbar directly from the front of the circuit breaker.

Where possible, the terminals have laser markings on the surface to indicate the tightening torques for the correct isolation of cables and bars.

Fixed version

Standard SACE Tmax XT circuit breakers for UL and CSA are supplied with front terminals (F). However, they can be fitted with the following types of terminal as accessories thanks to the special kits:

- extended front (EF);
- extended spread front (ES);
- front for copper/aluminum cables (FCCuAl), for XT3 and XT4 sizes;
- front for copper cables (FCCu);
- multicable for copper cable (MC);
- for flexible busbar (FB);
- rear oriented (R)¹⁾.

For XT1 and XT3 sizes, the use of non-insulated busbar with $U_e \leq 480V$ involves the mandatory assembly of terminal-covers HTC.

¹⁾ IEC only

Accessories

Mechanical accessories

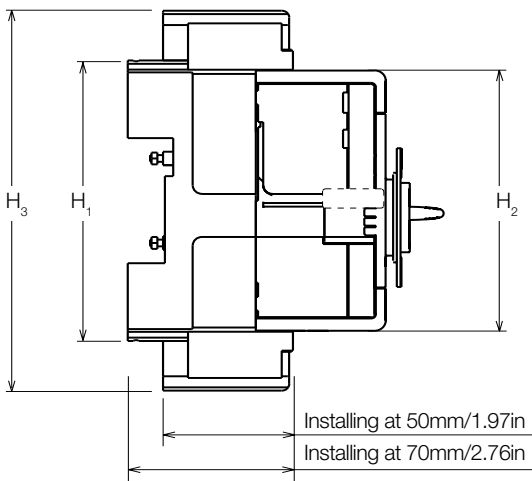
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Plug-in and withdrawable versions

The fixed part of plug-in and withdrawable version circuit-breakers is normally supplied with extended front terminals (EF) or horizontal/vertical rear terminals (HR/VR). Horizontal/vertical rear terminals (HR/VR) are factory-mounted in the horizontal position. If needed, the terminals can easily be field-rotated to the vertical position. A fixed part with front terminals (EF) can be converted into a fixed part with rear terminals (HR/VR) by ordering the appropriate terminal kit. The fixed parts can also be fitted with some of the same types of terminal available on the fixed circuit breaker after an adapter has been installed on the terminal zone of the fixed part itself. Consequently, the following types of connection terminals are also acceptable for use with the fixed part:

- extended spread front (ES);
- for copper cables (FCCu);
- multi-cable (MC).
- for copper and aluminum cables (FCCuAl);
- for flexibar (FB).

The adapter mimics the terminal zone of the fixed circuit breaker. This means that fixed parts can also be equipped with the same terminal covers and phase separators as those used for fixed circuit breakers.



Fixed part adapter

Fixed part adapter

Circuit breakers	H ₁ fixed part [mm/in]	H ₂ circuit breaker [mm/in]	H ₃ fixed part with two adapters [mm/in]
XT1	146/5.75	134/5.28	181/7.13
XT2	153/6.02	134/5.28	188/7.40
XT3	166/6.54	154/6.06	225/8.86
XT4	182/7.17	164/6.46	228/8.98

Front terminals - F ⁽¹⁾

CB.	Vers.	Busbar dimensions [mm/in]						Cable terminals [mm/in]		Tightening [Nm/lb-in]		H Terminal covers [mm/in]			H Phase separators [mm/in]		
		W min	W max	H	Ø	D min	D max	W	Ø	Cable or busbar /Terminal		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	F	13/0.512	16/0.630	7.5/0.295	6.5/0.256	3.5/0.138	5/0.197	16/0.630	6.5/0.256	M6	6/53.1	–	R	–	S	R	R
XT2	F	13/0.512	20/0.787	7.5/0.295	6.5/0.256	2.5/0.098	5/0.197	20/0.787	6.5/0.256	M6	6/53.1	–	R	–	S	R	R
XT3	F	17/0.669	25/0.984	9.5/0.374	8.5/0.335	5/0.197	8/0.315	24/0.945	8.5/0.335	M8	8/70.8	–	–	R	S	R	R
XT4	F	17/0.669	25/0.984	10/0.394	8.5/0.335	5/0.197	8/0.315	25/0.984	8.5/0.335	M8	8/70.8	–	–	R	S	R	R

⁽¹⁾ UL Listed

Front terminal - F



F terminal with cable lug



F terminal with busbar

Front extended terminals - EF ⁽¹⁾

CB	Vers.	Busbar dimensions [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]				H Terminal covers [mm/in]			H Phase separators [mm/in]		
		W	D	Ø	W	Ø	Terminal /CB		Cable or busbar /Terminal		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	F	20/0.787	4/0.157	8.5/0.335	20/0.787	8.5/0.335	M6	6/53.1	M8	9/79.7	–	R	–	–	S	R
XT2	F	20/0.787	4/0.157	8.5/0.335	20/0.787	8.5/0.335	M6	6/53.1	M8	9/79.7	–	S	–	–	S	R
XT3	F	20/0.787	6/0.236	10/0.394	20/0.787	10/0.394	M8	8/70.8	M10	18/159.3	–	–	R	–	S	R
XT4	F	20/0.787	10/0.394	10/0.394	20/0.787	10/0.394	M8	8/70.8	M10	18/159.3	–	–	S	–	S	R

⁽¹⁾ UL Listed

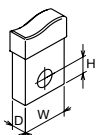
Front extended terminal - EF



EF terminal with cable lug



EF terminal with busbar



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Accessories

Mechanical accessories

Front extended spread terminals - ES ⁽¹⁾

CB	Vers.	Busbar dimensions MAX [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]				H Terminal covers [mm/in]			H Phase separators [mm/in]		
		W	D	Ø	W	Ø	Terminal /CB		Cable or busbar /Terminal		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	F-P	25/0.984	4/0.157	8.5/0.335	25/0.984	8.5/0.335	M6	6/53.1	M8	9/79.7	–	–	–	–	–	S
XT2	F-P-W	30/1.181	4/0.157	10.5/0.413	30/1.181	10.5/0.413	M6	6/53.1	M10	18/159.3	–	–	–	–	–	S
XT3	F-P	30/1.181	4/0.157	10.5/0.413	30/1.181	10.5/0.413	M8	8/70.8	M10	18/159.3	–	–	–	–	–	S
XT4	F-P-W	30/1.181	10/0.394	10.5/0.413	30/1.181	10.5/0.413	M8	8/70.8	M10	18/159.3	–	–	–	–	–	S

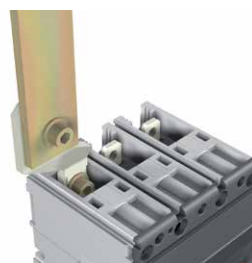
⁽¹⁾ UL Listed



Front extended spread terminal
- ES



ES terminal with cable
lug



ES terminal with busbar

Terminals for copper cables - FCCu ⁽²⁾

CB	Type of terminal	Vers.	Cable		Inner dimensions [mm/in]	Tightening [Nm/lb-in]	L cable stripping [mm/in]	H Terminal covers [mm/in]			H Phase separators [mm/in]		
			AWG/kcmil	mm²				Cable or busbar/Terminal		2/0.08	50/1.97	60/2.36	25/0.98
XT1 ⁽³⁾	internal	F-P	1x14...1/0	1x2.5...70	12x12/0.472x0.472	7/61.95	16/0.629	—	R	—	S ⁽¹⁾	R	R
XT1 ⁽⁴⁾	internal	F-P	1x14...1/0	1x1.5...70	9,5x16/0.37x0.63	7/61.95	16/0.629	—	R	—	S ⁽¹⁾	R	R
XT2	internal	F-P-W	1x14...1/0	1x2.5...95	14x14/0.551x0.551	<50mm² (1/10 AWG): 7/61.95	14/0.551	—	R	—	S ⁽¹⁾	R	R
						≥50mm² (1/10 AWG): 8,5/75.23							
XT3	internal	F-P	1x10...250	1x6...185	18x18/0.709x0.709	14/123.91	20/0.787	—	—	R	S ⁽¹⁾	R	R
XT4	internal	F-P	1x10...250	1x6...185	18x18/0.709x0.709	14/123.91	16/0.787	—	—	R	S ⁽¹⁾	R	R
XT4	internal	F-P	1x14-1/0	1x2.5...50	1x2.5...50	—	—	—	—	—	—	—	—

⁽¹⁾ Phase separators are supplied as standard with the basic version of the circuit breaker; ⁽²⁾ UL Listed; ⁽³⁾ MCCB only application; ⁽⁴⁾ MCCB/MCP application.



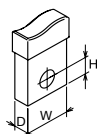
FCCu terminal



FCCu terminal with cable



FCCu terminal with busbar



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Terminals for copper cables - FCCuAl ⁽¹⁾

CB	Type of terminal	Vers.	Cable		Tightening [Nm/lb-in]			L cable stripping [mm/in]	H Terminal covers [mm/in]			H Phase separators [mm/in]			
			AWG/kcmil	mm²	Terminal/CB		Cable or busbar/Terminal		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87	
XT2	internal	F-P	1x14...1/0	1x2.5...50	2.5/22.12	M6	≤ 8mm² (8 AWG): 4.5/39.82 > 8mm² (8 AWG) 5.7/50.44		15,5/0.61	—	—	—	S	R	R
XT3	internal	F-P	1x14...1/0	1x2.5...50	9/79.7	slot	5.6/50		15,5/0.61	—	—	—	S	R	R
	internal	F-P	1x4...300	1x25...150	9/79.7	M6	22.6/200		20/0.787	—	—	—	S	R	R
XT4	internal	F-P	1x14...1/0	1x2.5...50	9/79.7	slot	5.6/50		15,5/0.61	—	—	—	S	R	R
	internal	F-P	1x4...300	1x25...150	9/79.7	M6	22.6/200		20/0.787	—	—	—	S	R	R
XT4	internal	F-P	1x250...350	1x127...177	not app	M6	25/221		24	—	—	—	S	R	R
XT4 X	internal	F-P	1x14...1/0	1x2.5...50	9/79.7	M6	<8mm² (8 AWG): 2.3/20.35 ≥8mm² (8 AWG): 5.6/49.56		16	—	—	—	S	R	R

⁽¹⁾ UL Listed



Internal FCCuAl terminal for copper/aluminum cables



Internal FCCuAl terminal for copper and aluminum cable with take-up of auxiliary voltage



FCCuAl internal terminal with cable

Terminals for flexible busbars - FB

CB	Type of terminal	Vers.	Busbar dimensions MIN [mm/in]			Busbar dimensions MAX [mm]			Tightening [Nm/lb-in]	H Terminal covers [mm/in]			H Separators [mm/in]		
			W	D	Nr	W	D	Nr		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	internal	F-P	10/0.394	0,8/0.031	2/0.078	10/0.394	0,8/0.031	9/0.354	7/61.95	—	R	—	S ⁽¹⁾	R	R
XT2	internal	F-P-W	10/0.394	0,8/0.031	2/0.078	10/0.394	0,8/0.031	9/0.354	7/61.95	—	R	—	S ⁽¹⁾	R	R
XT3	internal	F-P	16/0.629	0,8/0.031	2/0.078	16/0.629	0,8/0.031	10/0.394	14/123.91	—	—	R	S ⁽¹⁾	R	R
XT4	internal	F-P-W	16/0.629	0,8/0.031	2/0.078	16/0.629	0,8/0.031	10/0.394	14/123.91	—	—	R	S ⁽¹⁾	R	R

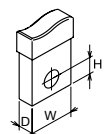
⁽¹⁾ Phase separators supplied as standard with basic version circuit breaker



Terminal for flexible busbars (FB)



FB terminal with flexible busbars



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Accessories

Mechanical accessories

Multi-cable terminals - MC Cu ⁽¹⁾

CB	Type of terminal	Vers.	Cable		Tightening [Nm/lb-in]		L cable stripping [mm/in]	H Terminal covers [mm/in]			H Phase separators [mm/in]		
			AWG/kcmil	mm ²	Terminal /CB	Cable or busbar /Terminal		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	external	F-P	6x14...2	6x2.5...35	6/53.1	7/61.95	10, 20, 30 / 0.394, 0.787, 1.181	—	S	—	—	—	—
XT2	external	F-P-W	6x14...2	6x2.5...35	6/53.1	7/61.95	10, 20, 30 / 0.394, 0.787, 1.181	—	S	—	—	—	—
XT3	external	F-P	6x12...2	6x2.5...35	8/70.8	7/61.95	15, 30 / 0.591, 1.181	—	—	S	—	—	—
XT4	external	F-P	6x12...2	6x2.5...35	8/70.8	7/61.95	15, 30 / 0.591, 1.181	—	—	S	—	—	—

Installation on loas side only

⁽¹⁾ UL Listed



Multi-cable terminals (MC)



Multi-cable terminals with cables

Rear horizontal terminals - R

CB	Vers.	Busbar dimensions MAX [mm]				Tightening [Nm/lb-in]				H Terminal covers [mm]			H Separators [mm]		
		W	H	D	Ø	Terminal/CB	Cable or busbar/terminal			2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	F	15/0.590	7.5/0.295	5/0.196	6.5/0.255	M5	5/44.2	M6	6/53.1	S	—	—	—	—	—
XT2	F	20/0.787	9/0.354	4/0.157	8.5/0.335	M6	6/53.1	M8	8/70.8	S	—	—	—	—	—
XT3	F	20/0.787	9/0.354	6/0.236	8.5/0.335	M8	8/70.8	M8	8/70.8	S	—	—	—	—	—
XT4	F	20/0.787	9/0.354	6/0.236	8.5/0.335	M8	8/70.8	M8	8/70.8	S	—	—	—	—	—



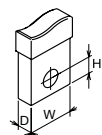
Rear horizontal terminals (R)



R terminal with horizontal busbar



R terminal with vertical busbar



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Extended front terminals for fixed part - EF ⁽¹⁾

CB	Vers.	Busbar dimensions [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]		Phase separators [mm/in]	
		W	D	Ø	W	Ø				
							Terminal/ CB	Cable or busbar /Terminal	100/3.94	200/7.87
XT1	P	20/0.787	5/0.197	8.5/0.335	21/0.827	6.5/0.256	M6	6/53.1	M6	9/79.7
XT2	P-W	20/0.787	5/0.197	8.5/0.335	21/0.827	6.5/0.256	M6	6/53.1	M6	9/79.7
XT3	P	25/0.984	8/0.315	8.5/0.335	30/1.181	8.5/0.335	M6	8/70.8	M8	18/159.3
XT4	P-W	25/0.984	8/0.315	8.5/0.335	30/1.181	8.5/0.335	M6	8/70.8	M8	18/159.3

⁽¹⁾ UL Listed



EF terminals for fixed part

Rear flat horizontal terminals for fixed part - HR

CB	Vers.	Busbar dimensions [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]		Rear Separators [mm/in]	
		W	D	Ø	W	Ø				
							Terminal/ CB	Cable or busbar /Terminal	90/3.543	
XT1	P	20/0.787	4	8.5/0.335	20/0.787	8.5/0.335		6/53.1	9/79.7	R
XT2	P-W	20/0.787	4	8.5/0.335	20/0.787	8.5/0.335		6/53.1	9/79.7	R
XT3	P	25/0.984	6	8.5/0.335	25/0.984	8.5/0.335		8/70.8	9/79.7	R
XT4	P-W	25/0.984	10	8.5/0.335	25/0.984	8.5/0.335		8/70.8	9/79.7	R



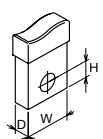
HR terminals for fixed part

Rear flat vertical terminals for fixed part - VR

CB	Vers.	Busbar dimensions [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]		Rear Separators [mm/in]	
		W	D	Ø	W	Ø				
							Terminal/ CB	Cable or busbar /Terminal	90/3.543	
XT1	P	20/0.787	4	8.5/0.335	20/0.787	8.5/0.335		6/53.1	9/79.7	R
XT2	P-W	20/0.787	4	8.5/0.335	20/0.787	8.5/0.335		6/53.1	9/79.7	R
XT3	P	25/0.984	6	8.5/0.335	25/0.984	8.5/0.335		8/70.8	9/79.7	R
XT4	P-W	25/0.984	10	8.5/0.335	25/0.984	8.5/0.335		8/70.8	9/79.7	R



VR terminals for fixed part



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Accessories

Mechanical accessories

3



Terminal covers



Phase barriers

Terminal covers and phase barriers

Terminal covers are applied to the circuit breaker to prevent accidental contact with live parts, thereby providing protection against direct contacts. The high terminal covers are pre-punched for knock-outs on the front to facilitate installing busbars and/or cables and ensuring correct insulation.

The phase barrier partitions increase the insulation characteristics between the phases on a level with the connections. They are mounted from the front, even when the circuit breaker has already been installed, by inserting them into the corresponding slots.

The table lists the various terminal covers and phase barriers available for each SACE Tmax XT circuit breaker. The terminal covers/phase barriers that are able to ensure adequate circuit breaker installation and correct insulation are listed in the “Connection terminals” section of this chapter, alongside each terminal.

		XT1	XT2	XT3	XT4
HTC - High terminal covers	[mm/in]	50/1.97	50/1.97	60/2.36	60/2.36
LTC - Low terminal covers ⁽¹⁾	[mm/in]	2/0.08	2/0.08	2/0.08	2/0.08
Phase barrier - low	[mm/in]	25/0.98	25/0.98	25/0.98	25/0.98
Phase barrier - medium	[mm/in]	100/3.94	100/3.94	100/3.94	100/3.94
Phase barrier - high	[mm/in]	200/7.87	200/7.87	200/7.87	200/7.87
Rear phase barrier for FP	[mm/in]	90/3.54	90/3.54	90/3.54	90/3.54

⁽¹⁾ IEC rear terminals only

Rotary handle operating mechanism

This device allows the circuit breaker to be operated by means of a rotary handle, which makes the circuit breaker easier to open and close.

Different types of handle are available:

- direct (RHD): installed directly on the front of the circuit breaker. Allows it to be operated from the front;
- extended (RHE): installed on the panel door. Allows the circuit breaker to be operated by means of a rod which acts on a base installed on the front of the circuit breaker;
- side, for lateral left (RHS-L) and lateral right (RHS-R). Allows operation from the side by means of a shaft which acts on the base installed on the front of the circuit breaker.

A long handle grip (LH) which can be combined with the extended handle (RHE) and with the side



Direct rotary handle (RHD)



Extended rotary handle (RHE)



(LH) Long handle



(RHS) Side rotary handle

All rotary handles are available in two versions:

- standard: grey color;
- emergency: red on a yellow background. Suitable for operating machine tools.

Rotary handles can be ordered:

- by specifying one single sales code (for RHD, RHE, RHS L/R);
- by indicating the following three devices (only for RHE):
 - rotary handle on compartment door with normal standard handgrip (RHE_H, RHE_H LH) or emergency handgrip (RHE_H_EM, RHE_H_EM LH);
 - 60.5mm/2.38" and 170.5mm/6.71" rod (RHE_S). The minimum and maximum distances between the fixing plate and the door are 60.5mm/2.38" and 170.5mm/6.71";
 - base to fix to the circuit base (RHE_B).

Using the rotary handle is an alternative to the motor operator and to all accessories of the front type. The rotary handles can be locked by means of a vast range of key locks and padlocks (consult the "Locks" section of this chapter).

The direct and extended rotary operating mechanisms allow early contacts to be used on closing in order to supply the undervoltage release in advance of the circuit breaker's closing (consult the "Early auxiliary contacts" section of this chapter).



IP54 protection

IP54 Protection

A device that can be applied onto the transmitted rotary and lateral handle allowing IP54 degree of protection^(G.1.11) to be achieved.



Front for operating lever mechanism

Front for operating lever mechanism

This device can be installed on the front of the circuit breaker, allowing it to be locked with key locks and padlocks.

The front for operating lever mechanism can only be installed on XT2 and XT4 three-pole and four-pole circuit breakers. It can be fitted with a vast range of key locks and padlocks (see the "Locks" section of this chapter).

Accessories

Mechanical accessories

3



Key lock



Fixed padlock in open position



Fixed padlock in open/
closed position



Removable padlock
in open position



Key lock/padlock for
withdrawable fixed part

Locks

Padlocks or key locks prevent the circuit breaker from being closed and/or opened. They can be fitted:

- directly on the front of the circuit breaker;
- on the rotary handle operating mechanism;
- on the front for lever operating mechanism;
- on the motor;
- to the fixed and withdrawable part, to prevent the moving part from being inserted;
- on the front of the thermal magnetic trip unit, to prevent the thermal part adjustor from being tampered with.

All locks that hold the circuit breaker in the open position ensure circuit isolation in accordance with the IEC 60947-2 Standard. In the closed position, the locks do not prevent the mechanism from releasing after a fault or remote control.



Circuit breaker with
removable padlock in open
position



Circuit breaker with fixed
padlock in open position



Circuit breaker with fixed
padlock in open/close
position



RHD with key lock



RHE with key lock



FLD with key lock



MOD with key lock



MOE with key lock



Withdrawable fixed part
with key lock/padlock

Type of lock		Circuit-breaker	Optional/ Standard supply	Position of circuit breaker lock	Type of lock	Removability of key
Circuit-breaker	PLL Fixed padlock device	XT1...XT4	Optional	OPEN / CLOSED	padlocks max 3 padlocks Ø 7mm stem (not supplied)	—
		XT1...XT4	Optional	OPEN	padlocks max 3 padlocks Ø 7mm stem (not supplied)	—
	PLL Removable padlock device	XT1, XT3	Optional	OPEN	padlocks max 3 padlocks Ø 7mm stem (not supplied)	—
		XT1...XT4	Optional	OPEN	Ronis Same key (A, B, C, D type)	OPEN
	KLC Key lock ⁽⁵⁾	XT1...XT4	Optional	OPEN	Ronis Different key	OPEN
		XT1...XT4	Optional	OPEN	Ronis Same key	OPEN / CLOSED
Rotary handle (RHD/RHE/ RHE-LH/ RHS)	RHL Key lock ⁽¹⁾	XT1...XT4	Optional	OPEN	Ronis Same key	OPEN
		XT1...XT4	Optional	OPEN	Ronis Different key	OPEN
		XT1...XT4	Optional	OPEN / CLOSED	Ronis Different key	OPEN / CLOSED
	Padlock device	XT1...XT4	Standard	OPEN	padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
	Door lock ⁽⁴⁾	XT1...XT4	Standard	DOOR LOCKED WHEN CIRCUIT BREAKER CLOSED	—	—
		XT1...XT4	Standard	DOOR LOCKED WHEN CIRCUIT BREAKER CLOSED	—	—
Frontal for operating lever (FLD)	Padlock device	XT2, XT4	Standard	OPEN	padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
	RHL Key lock ⁽¹⁾	XT2, XT4	Standard	DOOR LOCKED WHEN CIRCUIT BREAKER CLOSED	—	—
		XT2, XT4	Optional	OPEN	Ronis Same key	OPEN
		XT2, XT4	Optional	OPEN	Ronis Different key	OPEN
		XT2, XT4	Optional	OPEN / CLOSED	Ronis Different key	OPEN / CLOSED
Motor (MOD, MOE, MOE-E)	Padlock device	XT1...XT4	Standard	OPEN	padlocks max 3 padlocks Ø 8mm stem (not supplied)	—
	Key lock on motor MOL-D MOL-S	XT1...XT4	Optional	OPEN	Ronis Different keys	OPEN
		XT1...XT4	Optional	OPEN	Ronis Same keys	OPEN
	Key lock against manual operation MOL-M ⁽²⁾	XT1...XT4	Optional	MANUAL	Ronis key	WITH LOCK INSERTED
Fixed part of withdrawable	KLF-FP Key lock / padlock for fixed part of withdrawable device	XT2, XT4	Optional	Key WITHDRAWN / INSERTED Padlock WITHDRAWN	Ronis key Different + padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
		XT2, XT4	Optional	Key WITHDRAWN / INSERTED Padlock WITHDRAWN	Ronis key Same + padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
		XT2, XT4	Optional	Key WITHDRAWN / INSERTED Padlock WITHDRAWN	Giussani key Different + padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
		XT2, XT4	Optional	Key WITHDRAWN / INSERTED Padlock WITHDRAWN	Giussani key Same + padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
		XT2, XT4	Optional	Key WITHDRAWN / INSERTED Padlock WITHDRAWN	Giussani key Same + padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
Trip unit	Lock of thermal regulation ⁽³⁾	XT1, XT3	Optional	—	—	—
		XT2, XT4	Standard	—	—	—

⁽¹⁾ On the transmitted rotary handle (RHE), the lock is mounted on the base. The key lock is not available on the lateral handle (RHS).

⁽²⁾ Only for MOE and MOE-E.

⁽³⁾ Applied to the cover of the circuit breakers on a level with the regulator of the thermal element of thermal magnetic release TMD to prevent it from being tampered with.

⁽⁴⁾ This function can be totally inhibited by the customer when the handle is assembled by means of a simple operation that can be reversed if needed.

Moreover, if the door lock function is not disabled by the customer during the assembly phase, the door lock can be temporarily deactivated with a tool in exceptional cases, so that the door can be opened without opening the circuit breaker.

⁽⁵⁾ Incompatible with electrical accessories mounted in the third pole.

Accessories

Mechanical accessories

3



Interlock

Rear mechanical interlock

Support designed for rear installation of two circuit breakers that, through connections, prevents the two installed breakers from closing simultaneously.

The circuit breakers in the Tmax XT family are interlocked two-by-two (IO-OI-OO) by means of a chassis and special plates. Interlocked circuit breakers can be of a fixed, plug-in or withdrawable version. Both circuit breakers and molded case switch disconnectors in the three-pole and four-pole versions can be interlocked.

Acceptable combinations are:

	XT1	XT2	XT3	XT4
XT1	■	■	■	■
XT2	■	■		■
XT3	■		■	
XT4	■	■		■

The following equipment must be ordered to make the rear interlock:

- a vertical or horizontal chassis;
- a plate for each circuit breaker to be interlocked.



Interlock - Chassis

+



Two Plates

=



Interlock



Bracket for fixing on DIN rail

Bracket for fixing on DIN rail

Support designed to be installed on the back of the circuit breakers to simplify assembly on standardized DIN EN 50022 rail.

The following can be installed on DIN EN 50022 rail:

- all Tmax XT circuit breakers in the fixed three-pole or four-pole versions;
- XT1, XT3 circuit breakers equipped with RC Sel 200; RC Inst, RC Sel for XT1 and XT3 residual current releases.

Flanges

A flange is a plastic plate that acts as an interface between the circuit breaker and the hole in the panel door. All the Tmax XT series flanges are newly designed and do not require screws for installation. Flanges are applied:

- around the front part of the fixed/plug-in circuit breaker;
- around the operating lever for all fixed/plug-in/circuit breakers;
- around the MOD or MOE motor operator;
- around the front for FLD locks;
- around the direct rotary handle operating mechanism;
- around the extended rotary handle operating mechanism;
- around the RC Inst, RC Sel for XT1 and XT3, RC Sel for TX2 and TX4 residual current release.



XT1-XT3
with standard flange



XT2-XT4
with standard flange



XT1-XT4
with operating lever
flange



Rotary handle
with flange



MOE
with flange



MOD
align flush left
under MOD

Accessories

Electrical accessories

Tmax XT UL/CSA electrical accessories		UL Listed	XT1	XT2	XT3	XT4
Shunt opening release	SOR / SOR-C (uncabled and cabled)	■	■	■	■	■
Undervoltage release	UVR / UVR-C (uncabled and cabled)	■	■	■	■	■
Time-delay device for undervoltage release	UVD	—	■	■	■	■
Cabled auxiliary contacts, 1m	1 Q 1 SY 24V DC	■	■	■	■	■
Q: signaling contact open/closed	3 Q 1 SY 24V DC	■	—	■	■	■
	1 S51 24V DC	■	—	—	—	■
SY: trip position signaling contact	1 Q 1 SY 250V AC/DC	■	■	■	■	■
	2 Q 2 SY 1 S51 250V AC/DC	■	—	■	—	■
S51: signaling contact due to trip unit tripping or interaction	3 Q 2 SY 250V AC/DC	■	—	■	—	■
	3 Q 1 SY 250V AC/DC	■	—	■	■	■
	1 S51 250V AC/DC	■	—	■	—	■
	3 Q on left 250V AC/DC	■	■	■	■	■
	2 Q 1 SY 250V AC/DC	■	■	■	■	■
	1 Q 1 SY 400V AC	■	—	—	—	■
	2 Q 400V AC	■	—	■	—	■
	24V DC	■	■	■	■	■
Uncabled auxiliary contacts	S51 24V DC	■	—	■	—	■
	250V AC/DC	■	■	■	■	■
	S51 250V AC/DC	■	—	■	—	■
Auxiliary position contacts	AUP - Inserted (24V and 250V)	■	■	■	■	■
	AUP - Withdrawn (24V and 250V)	■	—	■	—	■
Early auxiliary contacts in the rotary handle	AUE - 2 contacts closed	■	■	■	■	■
	AUE - 2 contacts open	■	■	■	■	■
Motor operators	MOD	■	■	—	■	—
	MOE	■	—	■	—	■
	MOE-E	—	—	■	—	■
Residual current devices	RC Inst	—	■	—	■	—
	RC Sel 200	—	■	—	—	—
	RC Sel for XT1 XT3	—	■	—	■	—
	RC Sel for XT2 XT4	—	—	■	—	■
	RC B Type	■	—	—	■	—
Ekip electronic trip unit accessories	Ekip Display	—	—	■	—	■
	Ekip LED Meter	—	—	■	—	■
	Ekip Com	—	—	■	—	■
	HMI030 interface on the front of the switchboard	—	—	■	—	■



Cabled SOR - UVR



Cabled SOR - UVR
for withdrawable circuit breaker



Uncabled SOR - UVR

Service releases

Shunt opening release (SOR). Allows the circuit breaker to be opened by means of a non-permanent electrical control. Release operation is ensured for voltages between 70% and 110% of the rated power supply voltage U_n , 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 relay tripped. A remote controlled emergency opening command can be created by connecting an opening button to the SOR.

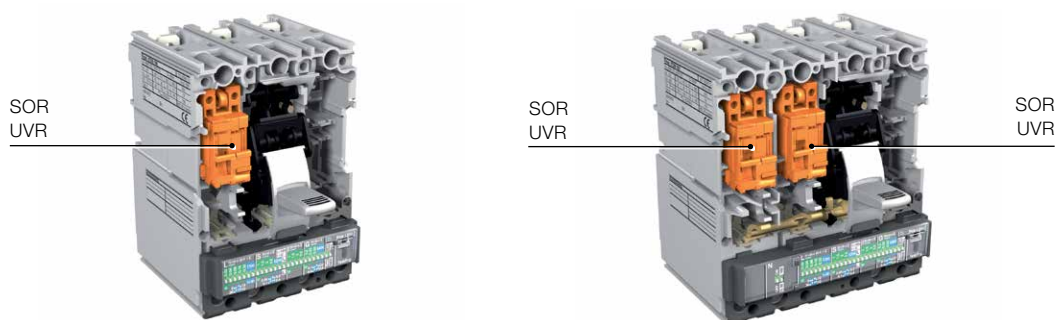
Undervoltage release (UVR). Allows the circuit breaker to open when the release is subjected to either a power failure or a voltage drop. Opening is ensured when the voltage is between 70% and 35% of the rated power supply U_n . After tripping, the circuit breaker can be closed again if the voltage exceeds 85% of U_n . 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 created by connecting an opening button to the UVR.

None of the service releases in the Tmax XT series requires screws for installation. They are extremely easy to fit. Just use slight pressure to snap the release into the appropriate place. All service releases are available in two versions:

- cabled (AWG20 cable section - 0.5mm²):
 - for fixed/plug-in circuit breakers with 1m long cables;
 - for withdrawable circuit breakers with fixed part and moving part connector;
- not cabled:
 - for fixed/plug-in circuit breakers with cables from (1.5 mm²/14 AWG in section).

In circuit breakers:

- three-pole: either one SOR or one UVR can be installed in the slot on the left of the operating lever;
- four-pole: two service releases can be installed at the same time by using the third and fourth poles. If the circuit breaker is the withdrawable type, the connector for the fourth pole must be ordered to be able to install an SOR or UVR in the fourth pole.



SOR Electrical specifications

Version	Max power absorbed on inrush	
	AC [VA]	DC [W]
12V DC		50
24-30V AC/DC	50	50
48-60V AC/DC	60	60
110...127V AC-110...125V DC	50	50
220...240V AC-220...250V DC	50	50
380-440V AC	55	
480-525V AC	55	

UVR Electrical specifications

Version	Power absorbed during normal operation	
	AC [VA]	DC [W]
24-30V AC/DC	1.5	1.5
48V AC/DC	1	1
60V AC/DC	1	1
110...127V AC-110...125V DC	2	2
220...240V AC-220...250V DC	2.5	2.5
380-440V AC	3	
480-525V AC	4	

Accessories

Electrical accessories



Time delay device for undervoltage release

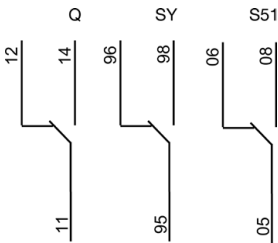
Time delay device for undervoltage release (UVD)

The undervoltage release (UVR) can be combined with an external electronic power supply time delay. This allows the circuit breaker opening to be delayed with preset and adjustable timing if the power supply voltage of the release either drops or fails, thus preventing untimely tripping caused by temporary faults. The time delay must be used with the undervoltage release (UVR) of the corresponding voltage.

A remote control positive safety opening command can be created by connecting an opening pushbutton to the UVR combined with the UVD.

UVD - Electrical specifications

Power supply Voltage [V]	24...30V AC/DC
	48...60V AC/DC
	110...125V AC/DC
	220...250V AC/DC
Settable delay [s]	0.25 - 0.5 - 0.75 - 1 - 1.25 - 2 - 2.5 - 3
Opening time tolerance	±15%



Auxiliary contacts

Contacts which allow information about the operating state of the circuit breaker to be routed outside the circuit breaker. The following information is available:

- open/closed: indication of the position of the circuit breaker power contacts (Q);
- trip: signaling circuit breaker opening due to the current release tripping (owing to overload or short-circuit), opening or undervoltage releases, emergency opening pushbutton of the motor operator, or use of the test button (SY);
- trip unit tripping: indicates that one of the protection functions of the electronic or thermal magnetic trip unit has tripped (S51).

Changeover of auxiliary contacts Q (open/closed), SY (relay tripped) and S51 (trip unit tripping)

Normal sequence	CB Open	Q=12	SY=96	S51=06
	CB Closed	Q=14	SY=96	S51=06
Trip sequence (trip caused by: SOR, UVR, trip test)	CB Open	Q=12	SY=96	S51=06
	CB Closed	Q=14	SY=96	S51=06
	CB Trips	Q=12	SY=98	S51=06
	CB Resets	Q=12	SY=96	S51=06
Trip sequence (trip caused by trip unit)	CB Open	Q=12	SY=96	S51=06
	CB Closed	Q=14	SY=96	S51=06
	CB Trips	Q=12	SY=98	S51=08
	CB Resets	Q=12	SY=96	S51=06



Cabled auxiliary contact



Uncabled auxiliary contact



Cabled auxiliary contact for withdrawable circuit breaker

24V DC and 250V AC/DC auxiliary contacts

250V AC/DC and 24VAC/ DC auxiliary contacts are installed without the need for screws. They are extremely easy to fit. Simply use slight pressure to snap the auxiliaries into the appropriate place. The following versions of auxiliary contacts are available:

- cabled (AWG20 cable section - 0.5mm²):
 - for fixed/plug-in circuit breakers with 1m long cables;
 - for withdrawable circuit breakers with fixed part and moving part connector;
- heavy duty cabled (AWG20 cable section - 0.5mm²):
 - for applications requiring cable capacity to 600V;
 - for fixed/plug-in circuit breakers with 1m long cables;
 - for withdrawable circuit breakers with fixed part and moving part connector;
- not cabled:
 - for fixed/plug-in circuit breakers with cables from 0.5 up to 1.5 mm² in section.

Auxiliary contacts are supplied for each circuit breaker in the SACE XT family in various combinations, as shown in the table. The following items can be ordered to make installation even more flexible:

- a non-cabled auxiliary contact can create different signals (Q or SY) based on its position within the circuit breaker;
- a non-cabled S51 auxiliary contact, which can be used for XT2 or XT4 circuit breakers;
- a cabled auxiliary contact, with non numbered cables. By changing the placement in the circuit breaker, it's possible to obtain different signals (Q or SY).

This version is available with standard cables and with a heavy duty (600V) cable option.

Combinations of cabled auxiliary contacts with numbered cables	XT1	XT2	XT3	XT4
	3/4p	3/4p	3/4p	3/4p
1 Q + 1 SY 24V DC ⁽¹⁾	F-P	F-P-W	F-P	F-P-W
3 Q + 1 SY 24V DC	—	F-P-W	F-P	F-P-W
1 S51 24V DC	—	F-P-W	—	F-P-W
1 Q + 1 SY 250V AC/DC ⁽¹⁾	F-P	F-P-W	F-P	F-P-W
2 Q + 2 SY + 1 S51 250V AC/DC	—	F-P-W	—	F-P-W
3 Q + 2 SY 250V AC/DC	—	F-P-W	—	F-P-W
3 Q 1 SY 250V AC/DC	—	F-P-W	F-P	F-P-W
1 S51 250V AC/DC	—	F-P-W	—	F-P-W
3 Q on left 250V AC/DC	F-P	F-P	F-P	F-P
2 Q + 1 SY 250V AC/DC	F-P	F-P	F-P	F-P

F = Fixed, P = Plug-in, W = Withdrawable

⁽¹⁾ Available in standard and HD versions

Auxiliary contacts 24V DC - 250V AC/DC

	Circuit breaker 3p	Circuit breaker 4p
XT1		
XT3		
XT2 XT4		

AUX 250V AC/DC - Electrical specifications

Power supply Voltage [V]	Class of use ^(G2.16)	Operating current [A]	
		AC	DC
110 AC/DC	DC-12	–	0.5
	DC-13 and DC-14	–	0.05
125 AC	AC-12, AC-13, AC-14	6	–
	AC-15	5	–
250 AC/DC	AC-12 and DC-12	6	0.3
	AC-13 and DC-13	6	0.03
	AC-14 and DC-14	5	0.03
	AC-15	4	–

AUX 24V DC - Electrical specifications

Power supply Voltage [V]	Operating current [A]
	DC
5 DC	0.01
24 DC	0.1

400V AC auxiliary contacts

400V AC auxiliary contacts are only available for XT2 and XT4 circuit breakers in the following versions:

- cabled (AWG17 cable section -1mm²):
 - for fixed/plug-in circuit breakers with 1m long cables;
 - for withdrawable circuit breakers with fixed part and moving part connector.

The 400V auxiliary contacts take up the whole right-hand slot of the circuit breaker.



Cabled auxiliary contact





Cabled auxiliary contact for withdrawable circuit breaker

Combinations	XT1	XT2	XT3	XT4
	3/4p	3/4p	3/4p	3/4p
1 Q + 1 SY 400V	–	F-P-W	–	F-P-W
2 Q 400V	–	F-P-W	–	F-P-W

F = Fixed, P = Plug-in, W = Withdrawable

Auxiliary contacts 400V AC

	Circuit breaker 3p	Circuit breaker 4p
XT2 XT4	 <p>AUX 400V</p>	 <p>AUX 400V</p>



Auxiliary position contact

AUX 400V AC - Electrical specifications			
Power supply Voltage [V]	Class of use (G2.16)	Operating current [A]	
		AC	DC
125 DC	DC-13 and DC-12	–	0.5
250 AC/DC	AC-13 and AC-14	12	–
	DC-12 and DC-13	–	0.3
400 AC	AC-13 and AC-14	3	–

Auxiliary position contacts - AUP

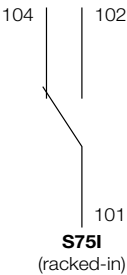
These contacts allow information about the position of the circuit breaker relative to the fixed part of plug-in or withdrawable versions to be routed outside the circuit breaker itself. Two types of position contact (AUP) are available, at 250V AC/DC and 24V AC/DC:

- racked-in contact for all plug-in and withdrawable SACE Tmax XT circuit breakers, to be positioned in the fixed part;
- racked-out contact for all withdrawable SACE Tmax XT2 and XT4 circuit breakers, to be installed in the side part of the withdrawable version.

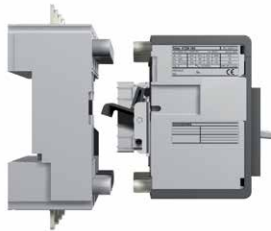
For further details about the electrical specifications of the contacts, consult the “24V DC and 250V AC contacts” section of this chapter.

Circuit breaker		N° racked-in contact	N° racked-out contact
XT1	3/4 poles	4	–
	3 poles	2	2
XT2	3 poles	2	2
	4 poles	4	2
XT3	3/4 poles	4	–
	3 poles	2	2
XT4	3/4 poles	4	–
	3 poles	2	2

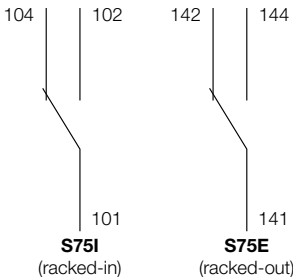
Plug-in circuit breaker with racked-in contact



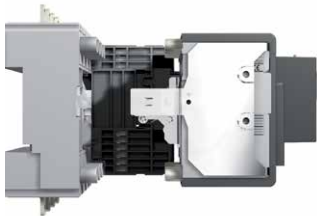
S57I=104



S75I=102



Withdrawable circuit breaker with racked-in/racked-out contacts



S75I=102
S75E=144



S75I=102
S75E=142



S75I=104
S75E=142



Early auxiliary contacts in the handle

Early make/break auxiliary contacts - AUE

Early contacts in relation to **closing (early/make)**: allow the undervoltage release to be supplied before the main contacts close, in accordance with the IEC 60204-1, VDE 0113 Standards.

Early contacts in relation to **opening (early/break)**: allow any electronic devices connected to the system that could be damaged owing to overvoltages generated by the circuit breaker opening operation to be disconnected in advance.

The early opening/closing auxiliary contacts can be installed inside the direct and extended rotary handle operating mechanisms for all the SACE Tmax XT circuit breakers (max two contacts @ 400V):

- in the cabled version with 1m long cables (AWG20 cable sections);
- a dedicated code is available in the withdrawable version which includes the connector for the moving part and fixed part.

For further details about the electrical specifications of the contacts, consult the “400V DC contacts” section of this chapter.

Motor operators

Devices that allow circuit breaker opening and closing to be controlled:

- in the remote mode, by means of electric controls;
- locally, directly from the front, by means of special mechanisms.



Direct action motor operator (MOD)

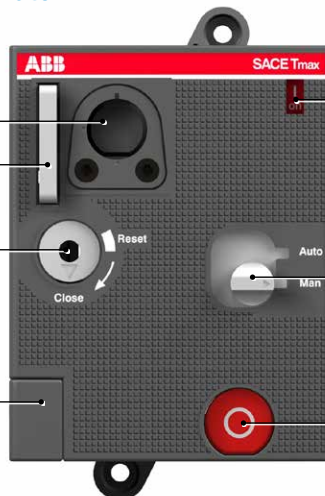
MOD direct action motor operator

Position for key lock
(key lock is not supplied)

Slot for padlock device

Slot for the operating lever

Lever case: under the cover
there is the thermal magnetic
trip unit rotary switch for setting
thermal protection



Circuit breaker
status signal ON-OFF

AUTO-MANUAL selector

Test pushbutton

The direct action motor control is available for XT1 and XT3 and is supplied:

- complete with 1m long cables;
- with flange, to replace the standard one supplied with the circuit breaker;
- with padlock device, only removable when the motor is in the open position. The padlock device accepts up to three 8mm/0.31in padlocks;
- auxiliary contacts (AU-MO) which allow the motor control mode (manual or auto) signal to be routed outside;
- (on request) the motor operator can be fitted with a key lock (consult the "Locks" section of this chapter).

Accessories

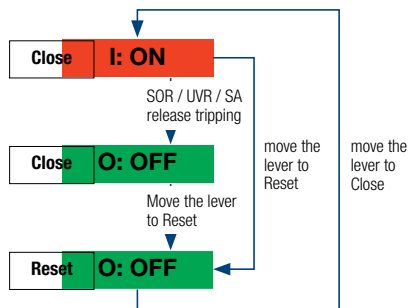
Electrical accessories

3

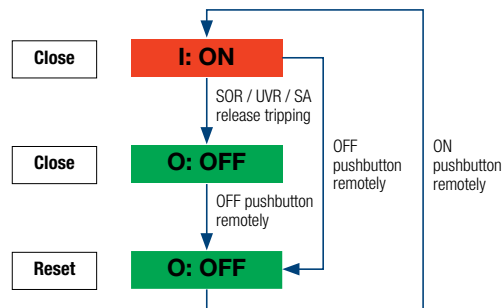
Operating principles:

- a selector on the front of the MOD is used for selecting the operating mode:
 - AUTO: when the selector is in this position, circuit breaker closing can only take place remotely by means of an electric impulse, whereas opening is allowed both remotely and from the front of the motor;
 - MANUAL: when the selector is in this position, the circuit breaker can only be opened/closed from the front of the motor by means of the corresponding lever housed in a slot made in the motor itself;
- operation of the motor operator via remote control is also ensured by permanent electrical opening/closing impulses;
- the resetting modes shown in the diagrams below depend on the reset wiring diagram chosen by the customer (consult the reset wiring diagrams in the “Electric diagrams”) chapter.

Operating mode: Manual



Operating mode: Auto



Stored energy motor operators (MOE)

Stored energy motor operators - MOE and MOE-E



The MOE or MOE-E stored energy motor operator is available for XT2 and XT4 and is supplied:

- complete with 1m long cables;
- complete with connector for the fixed part and moving part of withdrawable devices. If the motor operator is used with fixed or plug-in circuit breakers, the connector can be easily removed;
- with flange, to use instead of the standard one supplied with the circuit breaker;
- with padlock device, only removable when the motor is in the open position. The padlock device accepts up to three 8mm/0.31in padlocks;
- with lock of the AUTO-MANUAL selector;

- with auxiliary contacts (AUX-MO) that allow the motor's control mode (manual or remote) signal to be routed outside;
- (on request) the motor operator can be fitted with a key lock (consult the "Locks" section in this chapter);
- (on request) the motor operator can be equipped with a lock to safeguard against manual operation MOL-M (consult the "Locks" section in this chapter).

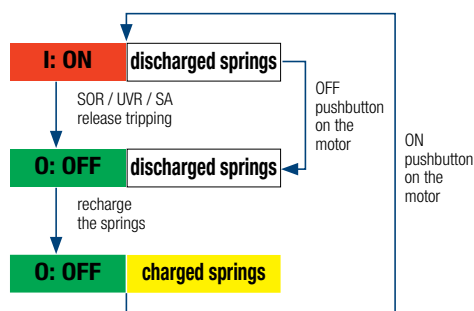
Operating principles:

- a selector on the front of the MOE, is used for selecting the operating mode:
 - AUTO: when the selector is in this position, the pushbuttons on the front of the motor are locked. Circuit breaker closing can only take place remotely by means of an electric impulse, whereas opening is allowed both remotely and from the front of the motor;
 - MANUAL: the circuit breaker can only be opened/closed from the front of the motor using the appropriate pushbuttons;
 - LOCKED: when the selector is in this position, the circuit breaker is in the open position. The padlock device can be withdrawn and the motor locked in the open position;
- operation of the motor operator via remote control is also ensured by permanent electrical opening/closing impulses. Once an opening command has been given, the next closing command (permanent) is taken over by the motor operator once opening has been completed. Likewise, an opening command is taken over once the previous closing operation has been completed;
- the resetting modes shown in the diagrams below depend on the reset wiring diagram chosen by the customer (consult the reset wiring diagrams in the "Electric diagrams" chapter).

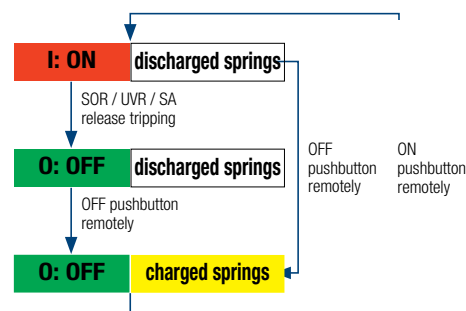
If the electronic trip unit (Ekip LSI, Ekip LSIG or Ekip E-LSIG) with Ekip Com module is used, motor operator MOE-E can be used instead of motor operator MOE.

MOE-E allows the digital signals from the monitoring system to be used by means of the release and Ekip Com contacts and to be converted into power signals for operating the motor operator. All the features described above for the MOE motor operator are also valid for the MOE-E version.

Operating mode: Manual



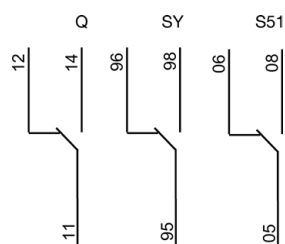
Operating mode: Auto



Accessories

Electrical accessories

3



Changeover of auxiliary contacts Q (open/closed), SY (relay-tripped) and S51 (trip unit tripping)

Circuit breaker with MOE (MANUAL Mode)

Normal sequence	CB Closed	Q=14	SY=96	S51=06
	By pressing the Red pushbutton, the CB trips	Q=12	SY=98	S51=06
	Charging the springs, CB opens	Q=12	SY=96	S51=06
	By pressing the Green pushbutton, the CB Closes	Q=14	SY=96	S51=06
Trip sequence (trip caused by: - SOR, - UVR, - trip test)	CB Closed	Q=14	SY=96	S51=06
	CB trips	Q=12	SY=98	S51=06
	Charging the springs, CB opens	Q=12	SY=96	S51=06
	By pressing the Green pushbutton, the CB Closes	Q=14	SY=96	S51=06
Trip sequence (trip caused by trip unit)	CB Closed	Q=14	SY=96	S51=06
	CB trips	Q=12	SY=98	S51=08
	Charging the springs, CB opens	Q=12	SY=96	S51=06
	By pressing the Green pushbutton, the CB Closes	Q=14	SY=96	S51=06

Circuit breaker with MOE (AUTO Mode)

Normal sequence	CB Closed	Q=14	SY=96	S51=06
	By pressing the Opening pushbutton remotely, the CB opens	Q=12	SY=98	S51=06
	By pressing the Closing pushbutton remotely, the CB Closes	Q=14	SY=96	S51=06
Trip sequence (trip caused by: - SOR, - UVR, - trip test)	CB Closed	Q=14	SY=96	S51=06
	CB trips	Q=12	SY=98	S51=06
	By pressing the Opening pushbutton remotely, the CB opens	Q=12	SY=96	S51=06
	By pressing the Closing pushbutton remotely, the CB Closes	Q=14	SY=96	S51=06
Trip sequence (trip caused by trip unit)	CB Closed	Q=14	SY=96	S51=06
	CB trips	Q=12	SY=98	S51=08
	By pressing the Opening pushbutton remotely, the CB opens	Q=12	SY=96	S51=06
	By pressing the Closing pushbutton remotely, the CB Closes	Q=14	SY=96	S51=06

Electrical specifications		MOD		MOE and MOE-E	
Rated voltage, Un	[V]	–	24 DC	–	24 DC
	[V]	–	48...60 DC	–	48...60 DC
	[V]	110...125 AC	110...125 DC	110...125 AC	110...125 DC
	[V]	220...250 AC	220...250 DC	220...250 AC	220...250 DC
	[V]	380...440 AC	–	380...440 AC	–
	[V]	480...525 AC	–	480...525 AC	–
Operating Voltage	[% Un]	MIN=85% Un; MAX=110% Un			
Power absorbed on inrush Ps	[VA - W]	≤ 500	≤ 500	≤ 300	≤ 300
Power absorbed in Pc service	[VA - W]	≤ 300	≤ 300	≤ 150	≤ 150
Operating frequency	[Hz]	50..60			
Duration ⁽¹⁾	CL → OP [s]	< 0.1			
	OP → CL [s]	< 0.1			
	TR → OP [s]	< 0.1			
Mechanical life	[N° operations]	25000			
Minimum duration of electrical opening and closing command	[ms]	≥ 150			

⁽¹⁾ Total time, from transmission of impulse to opening/closing of circuit breaker

Connectors for electrical accessories

Plug-in circuit breaker

In the plug-in version of SACE Tmax XT circuit breakers, the auxiliary circuits can be disconnected by means of two different types of adapter:

- plug and socket adapter to be fixed on the bottom of the panel: for XT1, XT2, XT3, XT4;
- plug and socket adapter installed on the rear of the circuit breaker and in the fixed part of plug-in devices: for XT2, XT4.



Plug and socket adapters on the back of the panel



Plugged and socket adapter placed on the back moving part



Plug and socket adapter in the fixed part



Cabling of withdrawable version

Plug and socket adapters on the panel

To make it easier to connect/disconnect auxiliary circuits, wired electrical accessories can be connected to one or more plug and socket connectors to be installed on the back of the panel. 3, 6, 9 and 15-PIN connectors are available. The cables connect/disconnect to and from the connector quickly and easily without any special tools.

Consider the number of cables each electrical accessory requires when calculating the number of connectors needed.

Accessory	Number of cables
SOR, UVR, External Neutral	2
1 AUX	3
AUE	4
MOE-E	5
Ekip Com	6
MOE (with AUX-MO), MOD (with AUX-MO)	7

Plug and socket adapters installed on the rear of the circuit breaker and in the fixed part

Only for the plug-in versions of Tmax XT2 and XT4 circuit breakers can the auxiliary circuits be automatically disconnected. This is accomplished by an adapter installed on the rear of the circuit breaker and in the fixed part of the plug-in version.

The 12-PIN connector can only be used with accessories that function at a voltage not exceeding 250V AC/DC. Cables are connected to/disconnected from the connector quickly and easily with no special tools required. Wiring is to be carried out by the customer.

Withdrawable circuit breaker

When withdrawable circuit breakers are used, the codes of the electrical accessories specifically designed for this version must be ordered. These dedicated codes contain the wired electrical accessory with connector for both the moving and the fixed parts to be inserted in the side of the fixed part. If the MOE motor operator is ordered, connectors for the fixed part and moving part are always supplied since there is no dedicated code for the withdrawable version.

Electrical accessory connectors for withdrawable circuit breakers must all be installed in housings on the right-hand side of their fixed part. This type of connection allows for automatic disconnection of auxiliary circuits when the circuit breaker is withdrawn from the fixed part. If the customer wants to wire the fixed part in advance of the moving part, mounting connectors for the fixed part can be ordered as spare parts.

Residual current releases

Both circuit breakers and switch-disconnectors are pre-engineered for assembly combined with residual current releases.

Residual current circuit breakers, derived from the circuit breaker, are known as "mixed". In addition to protecting against circuit breakers' typical overloads and short circuits, they also protect people against ground fault currents. This, in turn, protects against direct and indirect contact and the risk of fire.

Residual current circuit breakers, derived from the switch-disconnector, known as "pures". They only provide residual current protection and not the protections typical of circuit breakers. "Pures" are only sensitive to ground fault current and are generally used as main switches in small panels for distribution to end users.

Using "pure" and "mixed" residual current circuit breakers allows for continuous monitoring of the installation's insulation status. It ensures effective protection against the risk of fire, explosion and, in the case of detecting fault at $I_{\Delta n} < 30\text{mA}$ devices, also protects people against indirect and direct contacts, incorporating compulsory measures established by the accident prevention standards and regulations.

The residual current releases comply with the following Standards:

- IEC 60947-2 annex B;
- IEC 61000: for protection against unwarranted tripping.

The table shows all the residual current devices that can be used with the Tmax XT family of circuit breakers:

	XT1		XT2		XT3		XT4	
	3p	4p	3p	4p	3p	4p	3p	4p
RC Inst	F	F			F	F		
RC Sel XT1-XT3	F	F			F	F		
RC Sel 200		F						
Rc Sel XT2-XT4				F-P-W				F-P-W
RC B type						F		

F = Fixed, P = Plug-in, W = Withdrawable

All Tmax XT residual current devices:

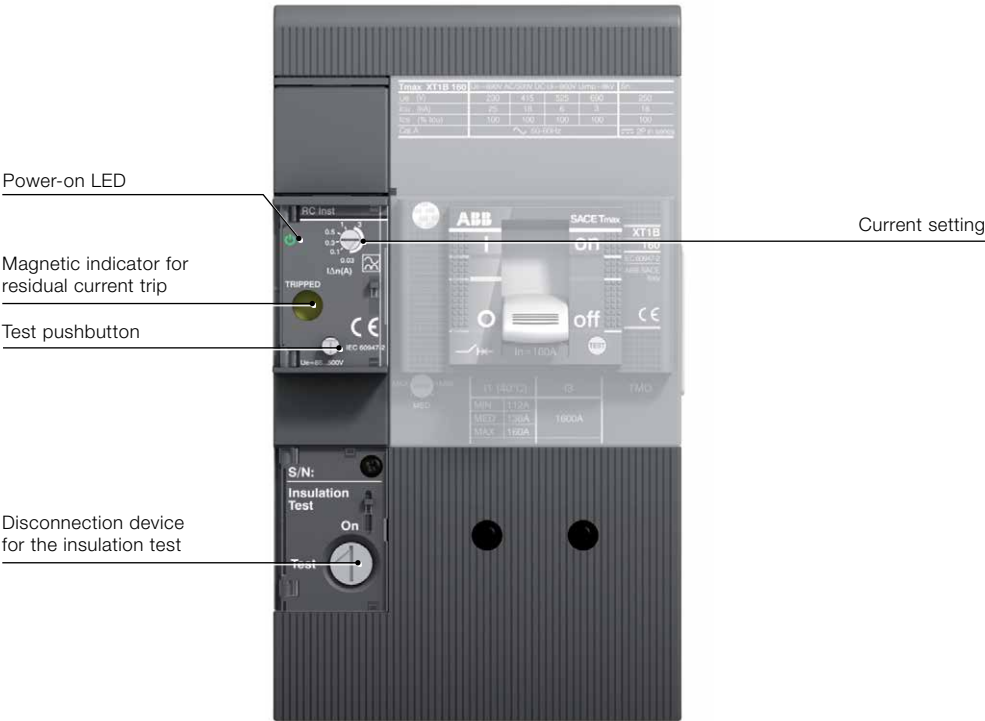
- feature microprocessor technology and act directly on the circuit breaker by means of a dedicated opening solenoid (supplied with the residual current release and also available as a spare part) which must be housed in the corresponding slot in the third pole left of the operating lever;
- do not need an auxiliary supply; they are powered directly from the mains;
- can be supplied either from above or below;
- functionality is ensured even with a single phase plus neutral or just two live phases and in the presence of pulsating unidirectional currents with direct components (minimum auxiliary voltage PHASE-NEUTRAL 85 Vrms);
- all possible connection combinations are permitted, as long as the neutral connection to the first pole on the left in the four-pole version is ensured.

RC Sel 200 residual current releases (type A) XT1

Thanks to its low height, the RC Sel 200 residual current release can be installed in 200mm modules. Its special shape also reduces the installation's footprint if two or more units are to be installed side by side.

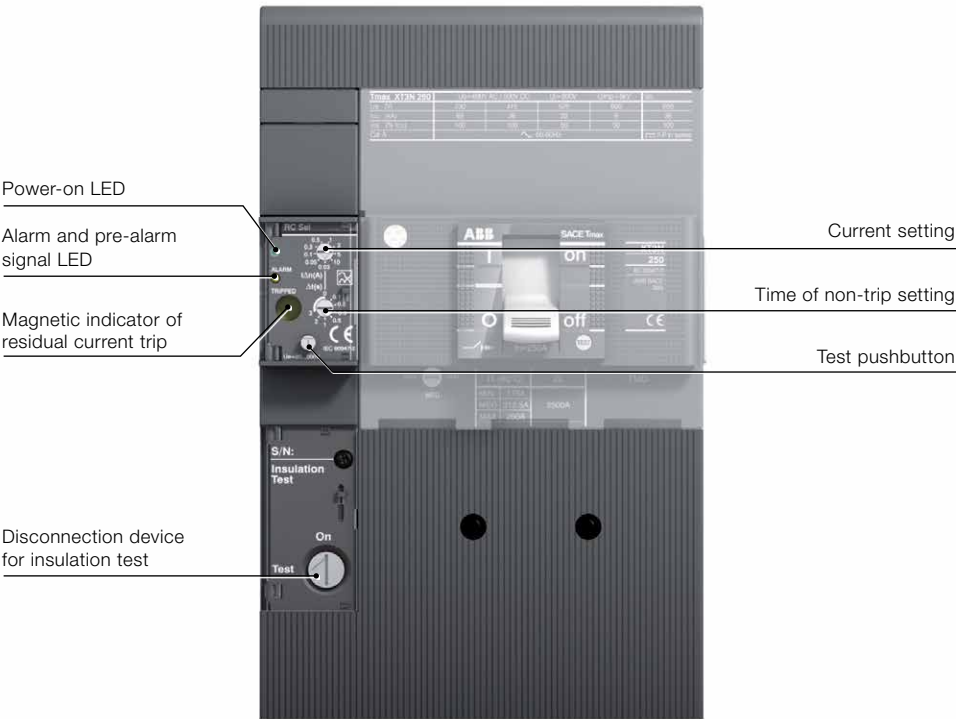


RC Inst residual current releases for XT1 and XT3

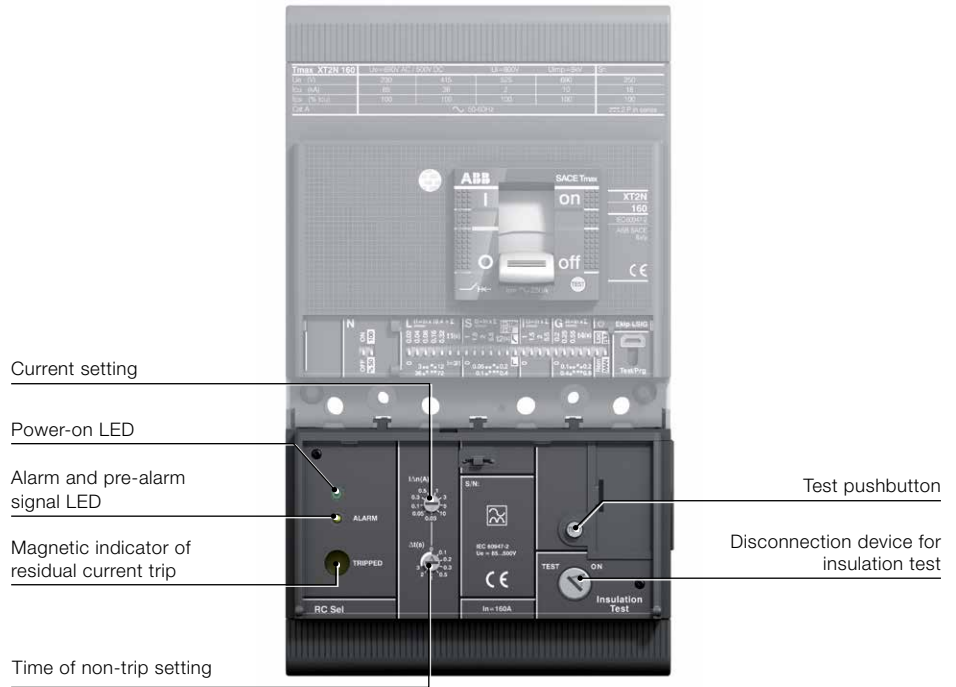


RC Sel residual current releases (type A) for XT1 and XT3

3



With RC Inst and RC Sel residual current release for XT1 - XT3, available only in Fixed version, it is possible to have rear terminal connection, by ordering RC Rear terminals 4p kits.



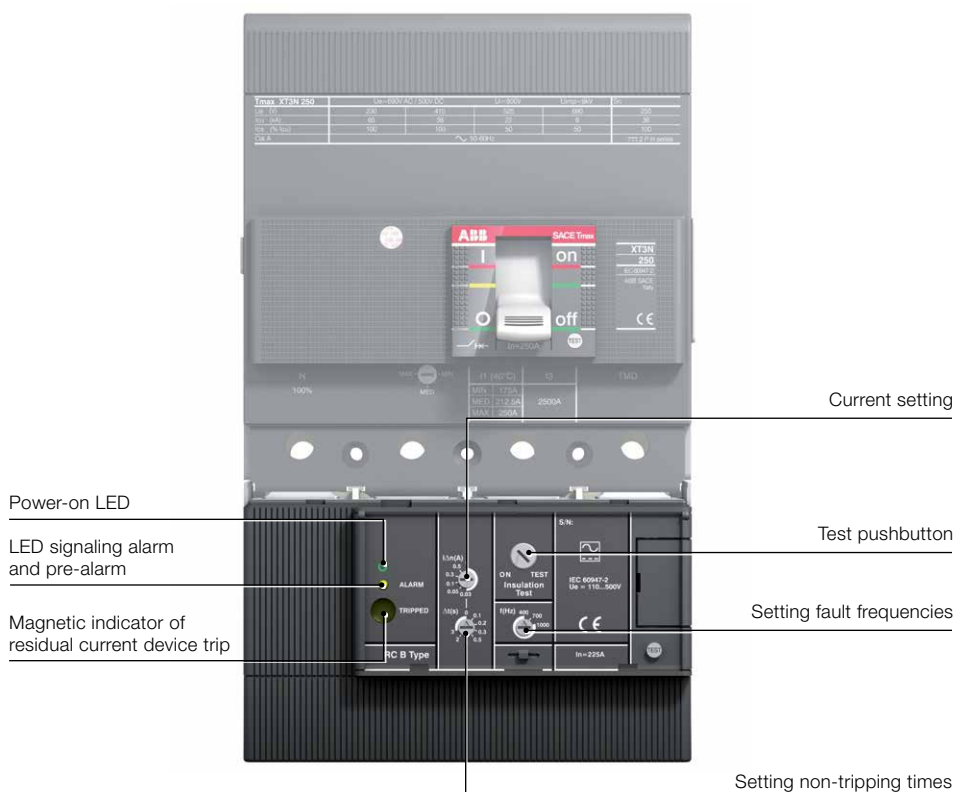
RC Sel residual current releases (type A) for XT2 and XT4

The fixed version of the RC Sel residual current release can easily be converted:

- into the plug-in type:
 - by ordering the kit for converting the residual current release from the fixed to the plug-in version;
- into the withdrawable type:
 - by ordering the kit for converting the residual current release from the plug-in to the withdrawable version. This kit contains the shunt opening release of the withdrawable residual current device to replace the one supplied with the fixed version. The shunt opening release of the withdrawable residual current device contains connectors for both the moving and fixed parts. The 160A frame with residual current withdrawable breaker can be used up to a maximum current of 135A; the 250A frame can be used up to 210A.

With the RC Sel residual current release for XT2-XT4, it is possible to use the same terminals for the fixed circuit breaker and for the fixed parts of plug-in and withdrawable circuit breakers.

RC B Type residual current release (type B) for XT3



The RC B Type residual current release, to be used in conjunction with the XT3 circuit breaker, has the following features:

- it complies with type B operation, which guarantees sensitivity to residual fault currents with alternating, pulsating alternating and direct current components (IEC 60947-1, IEC 60947-2 Annex B, IEC 60755);
- the maximum frequency band of the residual fault current can be selected (3 steps: 400 - 700 - 1000Hz). The residual current device can therefore be adapted to suit various industrial installation requirements according to the prospective fault frequencies generated on the load side of the release. Typical installations that may require different frequency thresholds from the standard ones (50 - 60Hz) are welding systems for the automobile industry (1000Hz), the textile industry (700Hz), airports and three-phase drives (400Hz)
- UL Listed.

Accessories

Electrical accessories

3

Electrical characteristic	Residual current devices				
	RC Sel 200mm XT1	RC Inst XT1-XT3	RC Sel XT1-XT3	RC Sel XT2-XT4	RC B Type XT3
Primary power supply Voltage [V]	85...690	85...690	85...690	85...690	110...500
Operating frequency [Hz]	45...66	45...66	45...66	45...66	45...66
Fault frequency [Hz]	50-60	50-60	50-60	50-60	400-700-1000
Test operating range [V]	85...500	85...500	85...500	85...690	110...500
Rated operating current [A]	up to 160	XT1 up to 160 XT3 up to 250	up to 160 XT1 up to 250 XT3	up to 160 XT2 ⁽²⁾ up to 250 XT4 ⁽²⁾	up to 225
Adjustable trip thresholds [A]	0.03-0.05-0.1-0.3 0.5-1-3-5-10	0.03-0.1-0.3 0.5-1-3	0.03-0.05-0.1-0.3 0.5-1-3-5-10	0.03-0.05-0.1-0.3 0.5-1-3-5-10	0.03-0.05-0.1 0.3-0.5-1
Selective type S	■	—	■	■	■
Adjustable NON-trip time settings [s] at 2xI _{Δn}	instantaneous 0.1-0.2-0.3- 0.5-1-2-3	instantaneous	instantaneous 0.1-0.2-0.3- 0.5-1-2-3	instantaneous 0.1-0.2-0.3- 0.5-1-2-3	instantaneous 0-0.1-0.2-0.3- 0.5-1-2-3
Power input	<10 W at 500V AC	<8 W at 500V AC	<10 W at 500V AC	<5 W at 500V AC	<10 W at 500V AC
Trip Coil with switch contact for trip signal	■	■	■	■	■
Input for remote controlled opening command	■	—	■	■	■
NO contact for pre-alarm signal	■	—	■	■	■
NO contact for alarm signal	■	—	■	■	■
Prealarm indication from 25% I _{Δn} . Steady yellow LED light	■	—	■	■	■
Alarm timing indication at 75% I _{Δn} . Flashing yellow LED light ⁽¹⁾	■	—	■	■	■
Type A for pulsating alternating current, Type AC for alternating current	■	■	■	■	■
Type B for pulsating current and direct current	—	—	—	—	■

⁽¹⁾ indication of alarm timing at 90% I_{Δn} for 30mA

⁽²⁾ plug-in and withdrawable version: the 160 frame can be used with a max I_n = 135A
the 250 frame can be used with a max I_n = 210A

SACE RCQ020/A panel type residual current release (type A)

Tmax circuit breakers can also be used in conjunction with RCQ020 panel type residual current relays with separate toroid to be installed on the line conductors ("/A" letter show the necessity to have on auxiliary power supply).

Thanks to its wide range of settings, the panel relay is suitable for:

- applications where the installation conditions are particularly restrictive, such as circuit breakers already installed or limited space in the circuit breaker compartment;
- creating a residual current protection system coordinated at various distribution levels, from the main switchboard to the end user;
- where residual current protection with low sensitivity is required, e.g. in partial (current) or total (time) selective chains;
- highly sensitive applications (physiological sensitivity) for protecting people against direct contacts.

Thanks to the 115-230...415V external auxiliary power supply, the RCQ020 panel-type residual current device is able to detect current leakage from 30mA to 30A and to act with a trip time that can be adjusted from instantaneous to delayed by 5s. The opening mechanism is the indirect action type and acts on the circuit breaker release mechanism by means of the shunt opening or undervoltage release of the circuit breaker itself.

The opening command to the circuit breaker (Trip delay) can be temporarily inhibited, and the circuit breaker can be opened by remote control by means of the RCQ020 device.

The following equipment must be requested when ordering:

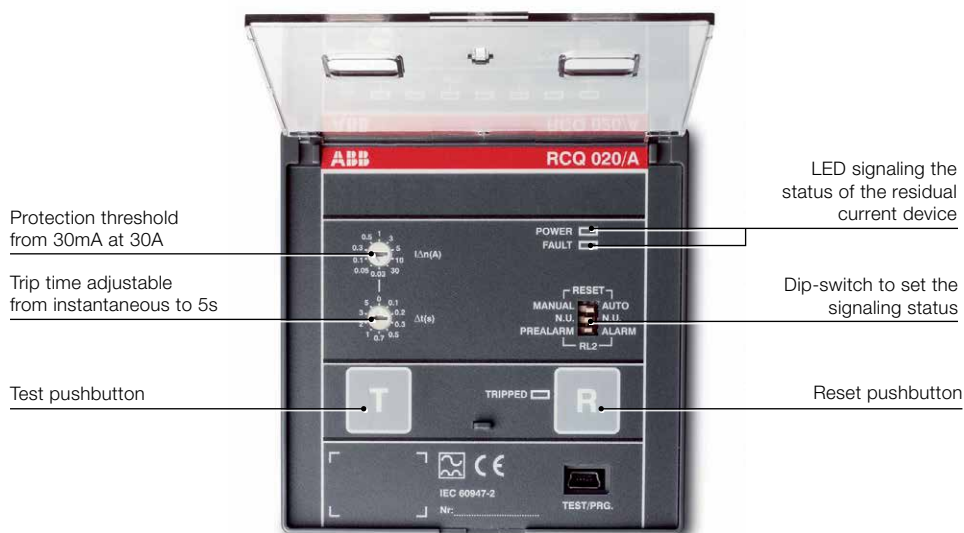
- the RCQ020 device;
- an opening coil (SOR) or an undervoltage release (UVR) of the circuit breaker to be housed in the corresponding slot in the left pole of the circuit breaker itself;
- a closed toroid with a diameter from 60mm to 185mm that can be used for cables and busbars.



Toroid

Signals available:

- LED to indicate the residual current device's status (supplied or not supplied). RCQ02 is equipped with a positive safety function that commands automatic circuit breaker opening in the absence of auxiliary voltage;
- LED for signaling faults;
- LED for signaling tripping of the residual current device;
- pre-alarm/alarm/trip electrical signals.



RCQ020/A residual current release

Power supply Voltage	AC [V]	115-230...415
Operating frequency	[Hz]	45÷66Hz
Inrush current	@115V AC	500mA for 50ms
	@230V AC	150mA for 50ms
	@415V AC	100mA for 50ms
Power input at full rate		2 [VA] / 2 [W]
Trip threshold adjustment $I_{\Delta n}$	[A]	0.03-0.05-0.1-0.3-0.5-1-3-5-10-30
No trip time adjustment	[s]	instantaneous 0.1-0.2-0.3-0.5-0.7-1-2-3-5
Pre-alarm threshold	x $I_{\Delta n}$	25%
A type for pulsing alternate current		■

Signals

Device powered visual signaling	■
Visual signaling of device not functioning/ not configured	■
Visual signaling of residual current protection	■
Electrical alarm/pre-alarm signal	■
Electric trip signal	■

Controls

Remotely controlled opening command	■
Remotely controlled reset command	■

Operating range of closed transformers

Ø 60 [mm] toroidal transformer	[A]	In max = 250A Use 0.03...30A
Ø 110 [mm] toroidal transformer	[A]	In max = 400A Use 0.03...30A
Ø 185 [mm] toroidal transformer	[A]	In max = 800A Use 0.1...30A
Connection to toroidal transformer		By means of 4 shielded or twisted conductors. Maximum tolerated length: 15m
Dimensions W x H x D	[mm]	96 x 96 x 77
Drilling for assembly on door	[mm]	92 x 92
Standard		IEC 60947-2 annex M

Accessories

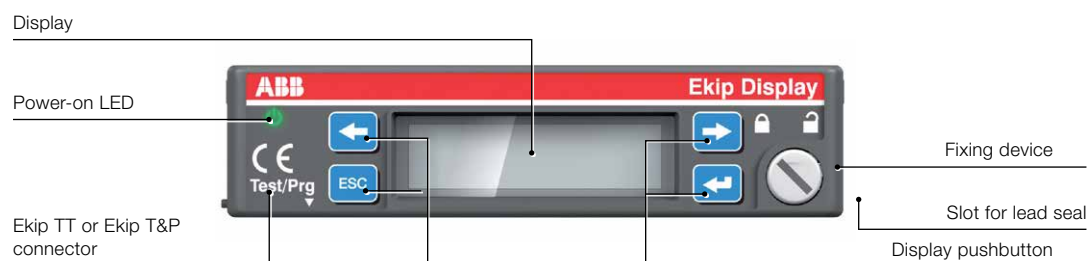
Accessories for electronic trip units

3

	Accessories for electronic trip units		
	Ekip Display	Ekip LED Meter	External neutral
Distribution protection			
Ekip LS/I	–	–	–
Ekip LSI	■	■	■
Ekip LSIG	■	■	■
Motor protection			
Ekip M-LIU	–	–	–
Ekip I	–	–	–
Energy measurement			
Ekip E-LSIG	■	■	■

Ekip Display

This unit can be installed on the front of the solid state trip unit to show current values, alarms and protection/communication parameter programming.

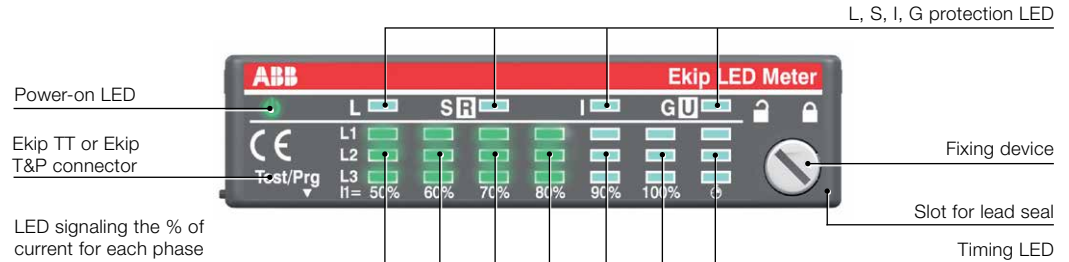


Main features:

- **installation:** Ekip Display can easily be installed on the front of the Ekip LSI, Ekip LSIG and Ekip E-LSIG electronic trip units. It is connected by means of the test connector on the front of the trip unit. Installation is simple and reliable thanks to a specially designed mechanism. It also provides a practical way of fastening the accessories to the circuit breaker in order to prevent undesired access to the dip-switches. Installation can be carried out under any conditions, even with the door closed and the electronic trip unit already on and functioning;
 - **functions:** Ekip Display has four buttons for browsing through the menus. It functions in the self-supply mode starting from a current $I > 0.2 \times I_n$ circulating through at least one phase. Backlighting is activated in the presence of higher loads, making displayed information more legible. Backlighting comes on in self-supply for a current $I > 0.4 \times I_n$ and is always on when there is electronic trip unit auxiliary power supply.
- Ekip Display:
- shows the current, voltage, power and energy values;
 - shows the settings of the protection functions in Amperes or in I_n ;
 - shows the protection that caused the release to trip and the fault current (only when there is 24V external voltage or the Ekip TT unit);
 - allows the trip thresholds of the trip unit to be programmed and the communication parameters to be set on bus system;
- **compatibility:** Ekip Display can be fitted even when front accessories, such as the motor, direct and transmitted rotary handles etc. are already installed. It's possible to use Ekip TT or Ekip T&P without removing Ekip Display. It's not possible to use Ekip Display with the withdrawable version of circuit breaker.

Ekip LED Meter

The Ekip LED Meter can be applied to the front of the electronic trip unit. It displays the current values and alarms.



Main features:

- **installation:** Ekip LED Meter can be easily installed on the front of Ekip LSI, Ekip LSIG and Ekip E-LSIG electronic trip units. It is connected by means of the test connector on the front of the release. Installation is simple and reliable thanks to a specially designed mechanism. It also provides a practical way of fastening accessories to the circuit breaker in order to prevent undesired access to dip-switches. Installation can be carried out under any conditions, even with the door closed and the electronic trip unit already on and functioning;
- **functions:** Ekip LED Meter provides an accurate indication of the value of the current circulating in the trip unit. It does this by means of its. Its different colors allow the normal operation, prealarm and alarm states of the circuit breaker to be recognized at a glance. It functions in self-supply mode from a current of $I > 0.2 \times I_n$ circulating through at least one phase or when electronic trip unit's auxiliary power is available;
- **compatibility:** the Ekip LED Meter can also be fitted with front accessories, such as the motor, direct and transmitted rotary handles. Ekip TT or Ekip T&P can be used without removing Ekip LED Meter. Ekip LED Meter cannot be used when the breaker is in the withdrawable version.

Current sensor for external neutral

The current sensor for external neutral is applied to the uninterrupted neutral conductor. It allows neutral current for all protection functions to be read.

Main features:

- **installation:** the external neutral current sensor is available for XT2 and XT4 three-pole circuit breakers in the fixed/plug-in and withdrawable version equipped with an Ekip LSI or an Ekip LSIG electronic trip unit. The sensor must be connected to the release with the specific connector, which must be ordered separately.



Connector for 24V

Connection accessories

Devices that allow the electronic trip unit to be connected to external plant units or components. These connectors are available for the circuit breakers in fixed, plug-in and withdrawable versions.

Name of connector	Trip Units
External neutral connector	Ekip LSI – Ekip LSIG – Ekip E-LSIG
Connector for 24V DC auxiliary power supply	Ekip LSI – Ekip LSIG – Ekip E-LSIG

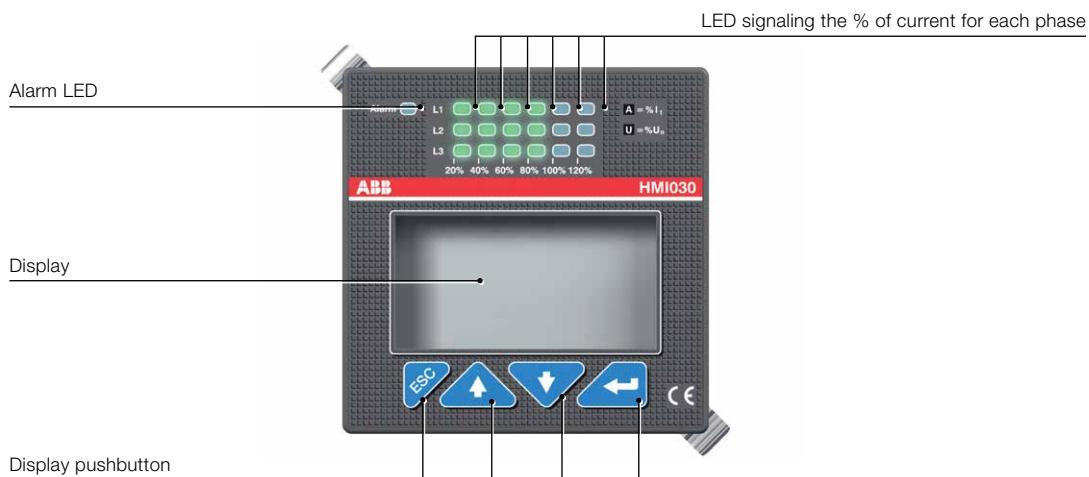
The connector for the auxiliary power supply is inserted inside the right-hand slot of the circuit breaker, and occupies the space of two due auxiliary contacts. To check compatibility with the auxiliary contacts, consult the compatibility tables in this chapter.

Accessories

Communication devices and systems

HMI030 interface on the front of the switchboard

HMI030 is an interface on the front of the switchboard and is usable with protection trip units fitted with Ekip Com.



Main features:

- **installation:** HMI030 can be fitted into the hole in the door using the automatic click-in method. In situations where mechanical stress is particularly intense, it can also be installed by using the special clips supplied. It must be connected directly to the Ekip LSI, Ekip LSIG or Ekip E-LSIG protection trip unit with Ekip Com via the serial communication line. HMI030 requires a 24V DC power supply;

- **functions:** HMI030 consists of a graphic display and 4 buttons for browsing through the menus. This accessory allows you to view:

- the measurements taken by the release to which it is connected;
- the alarms/events of the release.

Thanks to its high level of accuracy, the same as that of the trip unit protection, the device is a valid substitute for conventional instruments without any additional current transformers.

- **communication:** HMI030 is provided with two communication lines. Either one can be used.
 - Modbus
 - Local Bus.

Connecting Ekip LSI, Ekip LSIG or Ekip E-LSIG to the Local Bus allows the Modbus line to be connected to a different communication network.

Consult the "Electrical diagrams" chapter for further details about wiring.



Ekip Com is available in two versions: one for fixed/plug-in circuit breakers and one, complete with connectors for both the fixed and moving parts, for withdrawable circuit breakers.

- **installation:** the Ekip Com module is inserted into the special area in the right-hand pole of the circuit breaker and can be fastened without screws or tools.

To connect with the trip unit, a special cable that is fitted with a cable guide is used to ensure an easy and safe installation. The Modbus line is connected by means of a terminal box, to which a 24V DC auxiliary power supply must be connected. The connection of the Modbus line is made by means of the terminal box to which a 24V DC auxiliary power supply must also be connected. The auxiliary power activates both the module and the protection trip unit;

- **functions:** the Ekip Com module allows for remote reading of the circuit breaker's status. In combination with an MOE-E motor operator, it can open/close the circuit breaker remotely. Combined with a trip unit fitted with a communication device (Ekip LSI, Ekip LSIG or Ekip E-LSIG), the Ekip Com module allows the trip unit's connection to a Modbus network. This allows protections to be programmed, measurements to be taken and alarms to be sent when it's connected to a control and/or monitoring system. Connected to the HMI030 interface, these data can be displayed directly on the front of the switchboard.

For further details on the communication systems which can be made by means of the Ekip Com module, refer to the “Communication systems” section in the “Ranges” chapter.

Ekip Com	
	<div> <div>Circuit breaker 3p</div> <div>  <div> <div>XT2</div> <div>XT4</div> </div> <div>Ekip Com</div> </div> </div>
	<div> <div>Circuit breaker 4p</div> <div>  <div>Ekip Com</div> </div> </div>

Accessories

Communication devices and systems

Ekip Connect

Installation and diagnosis software for ABB SACE products with Modbus RTU communication.

The software can be used during the commissioning stage, or for troubleshooting in an up and running communication network.



Ekip Connect automatically scans the RS-485 bus, detects all the connected devices and checks their configuration, all possible addresses, parity and baud rate combinations. A simple click over SCAN will highlight:

- devices that fail to respond;
- configuration errors;
- incorrect addresses and parity;
- any wiring errors (with the SACE electronic trip unit);

achieving a complete diagnosis of the communication network.

This user-friendly software makes installing the Modbus communication network very easy.

Ekip Connect can be downloaded free of charge from the BOL (<http://bol.it.abb.com>) or ABB (www.abb.com) websites.

Accessories

Test and configuration accessories



Ekip T&P

Ekip T&P

Ekip T&P is a kit used to monitor, configure and test electronic protection trip units.

The kit includes:

- Ekip T&P unit;
- Ekip TT unit;
- Adapters for Emax and Tmax trip units;
- USB cable for connecting the Ekip T&P unit to the electronic trip unit;
- CD for installing Ekip Connect and the Ekip T&P driver.

The Ekip T&P unit is connected on one side to the USB port of a PC and on the other, by means of a cable provided, to the protection trip unit of the SACE Tmax XT series.

The Ekip T&P unit allows automatic, manual and trip tests of the device it is connected to. These functions are managed by means of the Ekip T&P Interface which can only be activated directly by the Ekip Connect when the Ekip T&P is present and connected to the PC.



Ekip TT

Ekip TT

The Ekip TT accessory is supplied with a special connector to facilitate connection between the electronic trip unit and the Ekip TT unit. The kit also includes an adapter that allows the Ekip TT unit to be used with the current Tmax breakers.

Ekip TT is a device which allows:

- verification that the electronic trip unit's opening solenoid and the circuit breaker's trip mechanism (trip test) are functioning properly;
- testing the LEDs on the electronic trip unit it's connected to;
- supplying auxiliary power to show the most recent protection interruption in the event of an intervention by the electronic unit. Simply linking Ekip TT to the electronic trip unit (or to the Ekip display or Ekip LED Meter), illuminates the LED light on the most recently interrupted protection.

Its reduced dimension makes it pocket sized.

	Ekip T&P functions						Ekip TT functions		
	Trip test	Protection function test	Parameter reading	Protection parameter programming	Communication parameter programming	Thermal memory enabling/disabling	Trip test	LED test	Latest trip detection
Distribution protection									
Ekip LS/I	■	■	■	—	—	■	■	■	■
Ekip LSI	■	■	■	■	■	■	■	■	■
Ekip LSIG	■	■	■	■	■	■	■	■	■
Ekip E-LSIG	■	■	■	■	■	—	■	■	■
Motor protection									
Ekip M-LIU	■	■	■	—	—	—	■	■	■
Ekip I	■	■	■	—	—	—	■	■	■

Accessories

Automatic network-generator transfer unit ATS021-ATS022



ATS021



ATS022

The ATS (Automatic Transfer Switch) is the network-generator transfer unit used in installations where switching the main power line to an emergency one is required, in order to ensure power supply to the loads in the case of anomalies in the main line.

The unit is able to manage the entire transfer procedure automatically, and prepares the commands for carrying out the procedure manually as well.

In the case of an anomaly in the main line voltage, in accordance with the parameters set by the user, the opening of the circuit breaker of the main line, the starting of the generator set (when provided) and the closing of the emergency line are performed. In the same way, in the case of the main line returning, the procedure of reverse transfer is controlled automatically.

The new generation of ATS (ATS021 and ATS022) offers the most advanced and complete solutions to ensure service continuity. The ATS021 and ATS022 can both be used with all the circuit breakers in the SACE Tmax XT family and with the switch-disconnectors.

ATS021 and ATS022 devices have been designed to operate on self-supply. The ATS022 unit also prepares the connection for auxiliary power supply, allowing additional functions to be used. ATS021 and ATS022 devices control both of the power supply lines and analyze:

- phase unbalance;
- frequency unbalance;
- phase loss.

Apart from its standard control functions, the ATS022 unit makes it possible to:

- select the priority line;
- controlling a third circuit breaker;
- incorporate it into a monitoring system with Modbus communication (auxiliary power supply is needed);
- read/set parameters and show measurements and alarms on a graphic display.

Typical applications include: power supply to UPS (Uninterrupted Power Supply) units, operating rooms and primary hospital services, emergency power supply for civil buildings, airports, hotels, data banks and telecommunication systems, power supply of industrial lines for continuous processes.

For correct configuration, each circuit breaker connected to the ATS021 or ATS022 must be fitted with the following accessories:

- mechanical interlock;
- motorized control of opening and closing;
- key lock against purely manual operation for the motor operator;
- contact for signaling the status (open/closed) and contact for tripped;
- contact for racked-in (in the case of a withdrawable version circuit breaker).

Accessories

Test and configuration accessories

3

	ATS021	ATS022
General		
Auxiliary Power Supply	Not Required	Not Required (24-110V DC is required only for Modbus dialog and 16 2/3 Hz system)
Rated Voltage, Un [VAC]	Max 480	Max 480
Frequency [Hz]	50, 60	16 2/3, 50, 60, 400
Dimensions (HxLxD) [mm]	96x144x170	96x144x170
Type of installation	Door mounting DIN-rail mounting	Door mounting DIN-rail mounting
Operating Mode	Auto/Manual	Auto/Manual
Features		
Monitoring of the Normal and Emergency lines	■	■
Controlling CBs of the Normal and Emergency lines	■	■
Generator set startup	■	■
Generator set shutdown with adjustable delay	■	■
Bus-tie	—	■
No-priority Line	—	■
Modbus RS485	—	■
Display	—	■
Ambient conditions		
Operating temperature	-20...+60 °C	-20...+60 °C
Humidity	5% - 90% without condensation	5% - 90% without condensation
Align flush left thresholds		
Minimum voltage	-30%...-5%Un	-30%...-5%Un
Maximum voltage	+5%...+30%Un	+5%...+30%Un
Fixed frequency thresholds	-10%...+10%fn	-10%...+10%fn
Test		
Test Mode	■	■
Compliance with standards		
Electronic equipment for use in power installations	EN-IEC 50178	EN-IEC 50178
Electromagnetic compatibility	EN 50081-2	EN 50081-2
	EN 50082-2	EN 50082-2
	IEC 68-2-1	IEC 68-2-1
Environmental conditions	IEC 68-2-2	IEC 68-2-2
	IEC 68-2-3	IEC 68-2-3

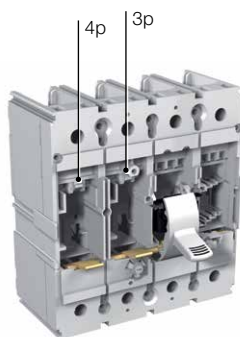
Accessories

Compatibility of accessories

3



Three-pole circuit breaker



Four-pole circuit breaker

Check whether the different devices are compatible/incompatible with each other when ordering accessories. The following table provides a simple check between:

- mechanical accessories, accessories for electronic trip units and motors;
- internal electrical accessories.

To better understand the abbreviations used to identify the accessories, refer to the “Symbols” paragraph in chapter 8, “Glossary”.

Example of reading the compatibility tables

Fixed/plug-in circuit breaker compatibility XT1-XT3

	SOR 3p	UVR 3p	3Q 3p	SOR 4p	UVR 4p
SOR 3p						
UVR 3p ¹	2	3	4	5	6	
3Q sx 3p						
SOR 4p	✓	✓	✓		✓	
UVR 4p	✓	✓	✓	✓		
.....						

The **UVR** positioned in the slot of the **3rd pole⁽¹⁾** is:

- incompatible with the **SOR** positioned in the **3rd pole⁽²⁾**;
- incompatible with the **UVR** positioned in the **3rd pole⁽³⁾**;
- incompatible with the **3Q** contacts on the left in the **3rd pole⁽⁴⁾**;
- compatible with the **SOR** positioned in the slot of the **4th pole⁽⁵⁾**;
- compatible with the **UVR** positioned in the slot of the **4th pole⁽⁶⁾**.
-

Compatibility of mechanical accessories

	RHD	RHE	RHS	FLD	PLL on CB	KLC on CB	KLC on RHX	KLC on FLD	MOD/ MOE/ MOE-E	Ekip Display	Ekip LED Meter	SOR/ UVR/ 3 Form C/Q L 3p	1 Q + 1 SY	2 Q + 1 SY	3 Q + 1 SY
RHD							✓			✓	✓	✓	✓	✓	✓
RHE							✓			✓	✓	✓	✓	✓	✓
RHS										✓	✓	✓	✓	✓	✓
FLD								✓		✓	✓	✓	✓	✓	✓
PLL on CB										✓	✓	✓	✓	✓	✓
KLC on CB											✓		✓	✓	✓
KLC on RHX	✓	✓									✓	✓	✓	✓	✓
KLC on FLD				✓						✓	✓	✓	✓	✓	✓
MOD/MOE/MOE-E										✓	✓	✓	✓	✓ ⁽¹⁾	✓ ⁽²⁾
Ekip Display	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Ekip LED Meter	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
SOR/PS-SOR/UVR/3 Form C/Q L	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
1 Q + 1 SY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2/Q + 1 SY	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁽¹⁾	✓	✓	✓			
3 Q + 1 SY	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁽²⁾	✓	✓	✓			

✓ Compatibility

⁽¹⁾ Not valid for XT1

⁽²⁾ Not valid for XT3

Compatibility of electrical accessories

Fixed/plug-in circuit breaker compatibility XT1-XT3

	SOR 3p	UVR 3p	SA 3p	3 Q L 3p	SA 3p	SOR 4p	UVR 4p	3 Q L 4p	1 Q + 1 SY	2 Q + 1 SY	3 Q + 1 SY	KLC on CB	MOD
SOR 3p						✓	✓	✓	✓	✓	✓		✓
UVR 3p						✓	✓	✓	✓	✓	✓		✓
3 Q L 3p						✓	✓	✓	✓	✓	✓		✓
SA 3p						✓	✓	✓	✓	✓	✓		✓
SOR 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
UVR 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
3 Q L 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
1 Q + 1 SY	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
2 Q + 1 SY	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓ ⁽¹⁾
3 Q + 1 SY	✓	✓	✓	✓	✓	✓	✓	✓				✓	
KLC on CB						✓	✓	✓	✓	✓	✓		
MOD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁽¹⁾			

✓ Compatibility

⁽¹⁾ Not valid for XT1

Fixed/plug-in circuit breaker compatibility XT2-XT4

	SOR 3p	UVR 3p	3Q sx 3p	SA	AUE internal 3p	SOR 4p	UVR 4p	3Q sx 4p	S51	1Q 1SY	2Q 1SY	3Q SY	3Q 2SY	2Q 2SY 1S51	400V 2Q	400V 1Q 1SY	24V	Ekip Com	KLC on CB
SOR 3p					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
UVR 3p					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3Q sx 3p						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SA					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AUE internal 3p	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SOR 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UVR 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3Q sx 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
S51	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓						✓	✓	✓
1Q 1SY	✓	✓	✓	✓	✓	✓	✓	✓	✓								✓		✓
2Q 1SY	✓	✓	✓	✓	✓	✓	✓	✓	✓										✓
3Q 1SY	✓	✓	✓	✓	✓	✓	✓	✓											✓
3Q 2SY	✓	✓	✓	✓	✓	✓	✓	✓											✓
2Q 2SY 1S51	✓	✓	✓	✓	✓	✓	✓	✓											✓
400V 2Q	✓	✓	✓	✓	✓	✓	✓	✓											✓
400V 1Q 1SY	✓	✓	✓	✓	✓	✓	✓	✓											✓
24V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓									✓
Ekip Com	✓	✓	✓	✓	✓	✓	✓	✓	✓										✓
KLC on CB						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

✓ Compatibility

Accessories

Compatibility of accessories

3

Withdrawable circuit breaker compatibility XT2-XT4

	S51	1Q 1SY	3Q 1SY	3Q 2SY	2Q 2SY S51	400V 2Q	400V 1Q 1SY	Ekip Com	24V	NE	MOE	MOE-E	AUX- MOE	AUE	SOR 3p	UVR 3p	SA	SOR 4p	UVR 4p
S51		✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1Q 1SY	✓								✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3Q 1SY										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3Q 2SY											✓	✓	✓	✓	✓	✓	✓	✓	✓
2Q 2SY S51											✓	✓	✓	✓	✓	✓	✓	✓	✓
400V 2Q										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
400V 1Q 1SY										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ekip Com	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
24V	✓	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
NE	✓	✓	✓			✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
MOE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓ ⁽¹⁾		✓	✓	✓	✓	✓
MOE-E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓ ⁽¹⁾		✓	✓	✓	✓	✓
AUX-MOE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁽¹⁾	✓ ⁽¹⁾			✓	✓	✓	✓	
AUE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓
SOR 3p	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
UVR 3p	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	
SA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
SOR 4p	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		
UVR 4p	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓		

✓ Compatibility ⁽¹⁾ AUX-MOE always supplied with MOE and MOE-E

Ordering information for XT1, XT2, XT3, XT4 UL/CSA Accessories



Fixed part of plug-in



Fixed part of withdrawable



EF terminals for fixed part



Conversion kit

Fixed parts, conversion kits and accessories for fixed parts

Fixed part of plug-in (P)

Type	XT1		XT2		XT3		XT4	
	3P	4P	3P	4P	3P	4P	3P	4P
Kit P FP EF	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
Kit P FP HR/VR ⁽¹⁾	KXT1EPFPEF-3	KXT1EPFPEF-4	KXT2EPFPEF-3	KXT2EPFPEF-4	KXT3EPFPEF-3	KXT3EPFPEF-4	KXT4EPFPEF-3	KXT4EPFPEF-4

⁽¹⁾IEC rated only. Terminals are factory-mounted in the horizontal position (HR).

Fixed part of withdrawable (W)

Type	XT2		XT4	
	3P	4P	3P	4P
Kit W FP EF	Catalog number	Catalog number	Catalog number	Catalog number
Kit W FP HR/VR ⁽¹⁾	KXT2WFPPEF-3	KXT2WFPPEF-4	KXT4WFPPEF-3	KXT4WFPPEF-4

⁽¹⁾IEC rated only. Terminals are factory-mounted in the horizontal position (HR).

Terminals for the fixed parts⁽¹⁾

Type	XT1		XT2		XT3		XT4	
	3P	4P	3P	4P	3P	4P	3P	4P
EF-Front extended terminals	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
R-Rear terminals HR/VR	KXT1EEFFP-3	KXT1EEFFP-4	KXT2EEFFP-3	KXT2EEFFP-4	KXT3EEFFP-3	KXT3EEFFP-4	KXT4EEFFP-3	KXT4EEFFP-4
PS - Rear phase separators 90mm/3.54in	KXT1ERFP-3	KXT1ERFP-4	KXT2ERFP-3	KXT2ERFP-4	KXT3ERFP-3	KXT3ERFP-4	KXT4ERFP-3	KXT4ERFP-4

⁽¹⁾IEC rated only.

Conversion kit of the circuit breaker from fixed into moving part of plug-in

Type	XT1		XT2		XT3		XT4	
	3P	4P	3P	4P	3P	4P	3P	4P
P MP kit	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
	KXT1PMP-3	KXT1PMP-4	KXT2PMP-3	KXT2PMP-4	KXT3PMP-3	—	KXT4PMP-3	KXT4PMP-4

Conversion kit of the circuit breaker from fixed into moving part of withdrawable

Type	XT2		XT4	
	3P	4P	3P	4P
W MP kit	Catalog number	Catalog number	Catalog number	Catalog number
	KXT2WMP-3	KXT2WMP-4	KXT4WMP-3	KXT4WMP-4



Conversion kit for turning a fixed circuit breaker into the moving part of a withdrawable circuit breaker



Fixed part adapter



Conversion kit for turning a fixed circuit breaker into the moving part of a plug-in circuit breaker



Key lock/padlock for fixed part



Ronis key lock/padlock for fixed part

Conversion kit of the fixed part from plug-in to withdrawable

	XT2	XT4
	Catalog number	Catalog number
FP P>W kit	KXT2FPPtoFPW	KXT4FPPtoFPW

Adapter for mounting the terminals of the fixed circuit breaker on the fixed part

	XT1		XT2		XT3		XT4	
Type	3P	4P	3P	4P	3P	4P	3P	4P
	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
ADP adapter for fixed parts (2 pieces)	KXT1ADP-3	KXT1ADP-4	KXT2ADP-3	KXT2ADP-4	KXT3EADP-3	KXT3EADP-4	KXT4ADP-3	KXT4ADP-4

Note: when using ADP with ES/MC terminals, also order "Kit F Front Terminals"

Conversion kit of RC Sel from fixed to plug-in⁽¹⁾

	XT2	XT4
Type	4P	4P
	Catalog number	Catalog number
P MP RC Sel 4P kit	KXT2EPMPRC-4	KXT4EPMPRC-4

⁽¹⁾IEC rated only.

Conversion kit of RC Sel from plug-in to withdrawable⁽¹⁾

	XT2	XT4
Type	4P	4P
	Catalog number	Catalog number
W MP RC Sel 4P kit	KXT2WFPEF-4	KXT4EWMPRC-4

⁽¹⁾IEC rated only.

Key lock for fixed part of withdrawable⁽¹⁾

	XT2, XT4
	Catalog number
KL-D key lock FP, different keys	KXTCEKLDFPW
KL-S key lock FP, same keys N.20005	KXTCEKLSFPW

⁽¹⁾IEC rated only.

Ronis key lock for fixed part of withdrawable⁽¹⁾

	XT2, XT4
	Catalog number
KL-D Ronis FP key lock, different keys	KXTCEKLDRonFPW
KL-S Ronis FP key lock, same type A keys	KXTCEKLSRonFPW

⁽¹⁾IEC rated only.

Ordering information for XT1, XT2, XT3, XT4 UL/CSA Accessories



SOR uncabled



SOR cabled



SOR for withdrawable

7



UVR uncabled



UVR cabled



UVR for withdrawable



Time delay device for undervoltage release

Service releases

Shunt opening trip - SOR

	XT1, XT2, XT3, XT4	XT2, XT4
Type	Fixed/plug-in	Withdrawable
Uncabled version	Catalog number	Catalog number
SOR 12V DC	KXTASORA	—
SOR 24-30V AC/DC	KXTASORB	—
SOR 48-60V AC/DC	KXTASORC	—
SOR 110-127V AC/110-125V DC	KXTASORD	—
SOR 220-240V AC/220-250V DC	KXTASORE	—
SOR 380-440V AC	KXTASORF	—
SOR 480-525V AC	KXTASORG	—
Cabled version	Catalog number	Catalog number
SOR-C 12V DC	KXTASORCFPA	KXTCSORCWA
SOR-C 24-30V AC/DC	KXTASORCFPB	KXTCSORCWB
SOR-C 48-60V AC/DC	KXTASORCFPC	KXTCSORCWC
SOR-C 110-127V AC/110-125V DC	KXTASORCFPD	KXTCSORCWD
SOR-C 220-240V AC/220-250V DC	KXTASORCFPE	KXTCSORCWE
SOR-C 380-440V AC	KXTASORCFPF	KXTCSORCWF
SOR-C 480-525V AC	KXTASORCFPG	KXTCSORCWG

Undervoltage release-UVR

	XT1, XT2, XT3, XT4	XT2, XT4
Type	Fixed/plug-in	Withdrawable
Uncabled version	Catalog number	Catalog number
UVR 24-30V AC/DC	KXTAUVR1	—
UVR 48V AC/DC	KXTAUVR2	—
UVR 60V AC/DC	KXTAUVR3	—
UVR 110-127V AC/110-125V DC	KXTAUVR4	—
UVR 220-240V AC/220-250V DC	KXTAUVR5	—
UVR 380-440V AC	KXTAUVR6	—
UVR 480-525V AC	KXTAUVR7	—
Cabled version	Catalog number	Catalog number
UVR-C 24-30V AC/DC	KXTAUVRCP1	KXTCUVRW1
UVR-C 48V AC/DC	KXTAUVRCP2	KXTCUVRW2
UVR-C 60V AC/DC	KXTAUVRCP3	KXTCUVRW3
UVR-C 110-127V AC/110-125V DC	KXTAUVRCP4	KXTCUVRW4
UVR-C 220-240V AC/220-250V DC	KXTAUVRCP5	KXTCUVRW5
UVR-C 380-440V AC	KXTAUVRCP6	KXTCUVRW6
UVR-C 480-525V AC	KXTAUVRCP7	KXTCUVRW7

Delay device for undervoltage release - UVD⁽¹⁾

	XT1, XT2, XT3, XT4
Type	Fixed/plug-in
Uncabled version	Catalog number
UVD 24-30V AC/DC	KT3UVD8
UVD 48-60V AC/DC	KT3UVD7
UVD 110-125V AC/DC	KT3UVD4
UVD 220-250V AC/DC	KT3UVD2

⁽¹⁾IEC rated only.

Connectors

Fourth pole connectors for withdrawable⁽¹⁾

	XT2, XT4
Type	Catalog number
Connector 4th Pole SOR/PS-SOR	KXTCE3PINCONSOR
Connector 4th Pole UVR	KXTCE3PINCONUVR

⁽¹⁾IEC rated only.

Socket plug connector on the panel⁽¹⁾

	XT1, XT2, XT3, XT4
Type	Catalog number
Socket-plug connector with 3 PINS	KXTAE3PINCON
Socket-plug connector with 6 PINS	KXTAE6PINCON
Socket-plug connector with 9 PINS	KXTAE9PINCON
Socket-plug connector with 15 PINS	KXTAE15PINCON

⁽¹⁾IEC rated only.

Fixed part socket-plug connector⁽¹⁾

	XT2, XT4
Type	Catalog number
Socket-plug connector of moving part - 12 PINS	KXTCE12PINMPCON
Socket-plug connector of fixed part - 12 PINS	KXTCE12PINFPCON

⁽¹⁾IEC rated only.

Electrical signals

Auxiliary contacts - AUX

	XT1	XT3	XT2, XT4	
Type	Fixed/plug-in	Fixed/plug-in	Fixed/plug-in	Withdrawable
Uncabled version	Catalog number	Catalog number	Catalog number	Catalog number
AUX 250V		KXTAAUX		—
AUX 24V DC		KXTAAUXD		—
AUX S51 250V	—	—	KXTCAXS51	—
AUX S51 24V DC	—	—	KXTCAXDS51	—
Cabled version				
AUX-C 3Q 250V Left	KXT1AXC3QL	KXT3AXC3QL	KXTCAXC3QL	—
AUX-C 1Q + 1 SY 250V		KXTAAXCQSYFP		KXTCAXCQSYW
AUX-C 2Q + 1 SY 250V		KXTAAXC2QSYFP		—
AUX-C 3Q + 1 SY 250V	—	KXTDAXC3QSYFP		KXTCAXC3QSYW
AUX-C 3Q + 2 SY 250V	—	—	KXTCAXC3Q2SYFP	KXTCAXC3Q2SYW
AUX-C 2Q + 2 SY + 1S51 250V	—	—	KXTCAXC2Q2SYS51FP	KXTCAXC2Q2SYS51W
AUX-S51 250V	—	—	KXTCAXCS51FP	KXTCAXCS51W
AUX-C 1Q + 1SY 24V DC	—	KXTAAXCDQSYFP		KXTCAXCDQSYW
AUX-C 3Q + 1SY 24V DC	—	KXTDAXCD3QSYFP		KXTCAXCD3QSYW
AUX-S51-C 24V DC	—	—	KXTCAXDS51FP	KXTCAXDS51W
AUX-C 1Q + 1SY 400V AC	—	—	KXTCAXC4QSYFP	KXTCAXC4QSYW
AUX-C 2Q 400V AC	—	—	KXTCAXC42QFP	KXTCAXC42QW

Ordering information for XT1, XT2, XT3, XT4 UL/CSA Accessories



AUP - Auxiliary position contacts

Auxiliary position contacts - AUP

	XT1, XT3	XT2, XT4
Cabled version	Catalog number	Catalog number
AUP-I - Four racked-in contacts 250V for plug-in circuit breaker		KXTAAUP250IN
AUP-I - Four racked-in contacts 24V DC for plug-in circuit breaker		KXTAAUP24IN
AUP-R - Two racked-out contacts 250V for withdrawable breaker	---	KXTCAUP250W
AUP-R - Two racked-out contacts 24V DC for withdrawable breaker	---	KXTCAUP24W



AUE - Early auxiliary contacts

Early auxiliary contacts - AUE

Type	XT1, XT2, XT3, XT4	XT2, XT4
Cabled version	Fixed/plug-in	Withdrawable
Catalog number	Catalog number	Catalog number
AUE - Two contacts in the rotary handle RHx (closed)	KXTAAUECLFP	KXTCAUECLW
AUE - Two contacts in the rotary handle RHx (open)	KXTDAUEOPFP	KXTCAUEOPW

Motor operators

Motor operators with direct action - MOD

	XT1, XT3
	Catalog number
MOD 24V DC	KXTBMOD24
MOD 48-60V DC	KXTBMOD48-60
MOD 110-125V AC/DC	KXTBMOD110-125
MOD 220-250V AC/DC	KXTBMOD220-250
MOD 380-440V AC	KXTBMOD280-440
MOD 480-525V AC	KXTBMOD480-525



Motor operator

Stored energy motor operator - MOE

	XT2, XT4
	Catalog number
MOE 24V DC	KXTCMOE24
MOE 48-60V DC	KXTCMOE48-60
MOE 110-125V AC/DC	KXTCMOE110-125
MOE 220-250V AC/DC	KXTCMOE220-250
MOE 380-440V AC	KXTCMOE380-440
MOE 480-525V AC	KXTCMOE480-525



MOE - Motor operator

Electronic stored energy motor operator - MOE-E⁽¹⁾

	XT2, XT4
	Catalog number
MOE-E 24V DC	KXTCMOEE24
MOE-E 48-60V DC	KXTCMOEE48-60
MOE-E 110-125V AC/DC	KXTCMOEE110-125
MOE-E 220-250V AC/DC	KXTCMOEE220-250
MOE-E 380-440V AC	KXTCMOEE380-440
MOE-E 480-525V AC	KXTCMOEE480-525

⁽¹⁾IEC rated only.



Direct rotary handle



Extended rotary handle



IP54

Rotary handle operating mechanisms

Rotary handle operating mechanism

Type	XT1, XT3	XT2, XT4	
	Fixed/plug-in Catalog number	Fixed/plug-in Catalog number	Withdrawable Catalog number
RHD Standard Direct Handle	KXTBRHDSTFP	KXTCRHSTFP	KXTCRHSTW
RHD Emergency Direct Handle	KXTBRHDEMFP	KXTCRHDEMFP	KXTCRHDEMW
RHE Standard Extended Handle	KXTBRHESTFP	KXTCRHESTFP	KXTCRHESTW
RHE Emergency Extended Handle	KXTBRHEEMFP	KXTCRHEEMFP	KXTCRHEEMW
RHE Standard Extended Handle with Padlock ⁽¹⁾	KXTBRHESTFPPLK	KXTCRHESTFPPLK	KXTCRHESTWPLK
RHE Emergency Extended Handle with Padlock ⁽¹⁾	KXTBRHEEMFPPLK	KXTCRHEEMFPPLK	KXTCRHEEMWPLK
RHS-L Standard Left Side Handle	KXTBRHSLSTFP	KXTCRHSLSTFP	—
RHS-L Emergency Left Side Handle	KXTBRHSLMFP	KXTCRHSLMFP	—
RHS-R Standard Right Side Handle	KXTBRHSRSTFP	KXTCRHSRSTFP	—
RHS-R Emergency Right Side Handle	KXTBRHSREMFP	KXTCRHSREMFP	—
Extended handle spare parts			
RHE_B Base for Extended Handle	KXTBRHEBFP	KXTCRHEBFP	KXTCRHEBW
RHE_B Base for Extended Handle with Padlock ⁽¹⁾	KXTBRHEBFPPLK	KXTCRHEBFPPLK	KXTCRHEBWPLK
RHE_S 500mm Shaft ⁽²⁾		KXTARHES500	
RHE_H Standard Extended Handle		KXTARHEHST	
RHE_H Emergency Extended Handle		KXTARHEHEM	
LH Standard Large Handle, NEMA 1		KXTALHNDLST	
LH Emergency Large Handle, NEMA 1		KXTALHNDLEM	
Standard Pistol Handle with reset function, 65mm, NEMA, 3R,12		OH65J10B	
Emergency Pistol Handle with reset function, 65mm, NEMA, 3R,12 ⁽³⁾		OHY65J10B	
Standard Pistol Handle with reset function, 65mm, NEMA, 4,4X ⁽³⁾		OH65L10B	
Emergency Pistol Handle with reset function, 65mm, NEMA, 4,4X ⁽³⁾		OHY65L10B	
Standard Pistol Handle with reset function, 125mm, NEMA, 3R,12		OH6125J10B	
Emergency Pistol Handle with reset function, 125mm, NEMA, 3R,12 ⁽³⁾		OHY125J10B	
Standard Pistol Handle with reset function, 125mm, NEMA, 4,4X ⁽³⁾		OH6125L10B	
Emergency Pistol Handle with reset function, 125mm, NEMA, 4,4X ⁽³⁾		OHY125L10B	
148mm Pistol Handle Shaft ⁽³⁾		OX10X148	
225mm Pistol Handle Shaft ⁽³⁾		OX10X225	
500mm Pistol Handle Shaft ⁽³⁾		OX10X500	

⁽¹⁾Consult ABB for availability

⁽²⁾Shaft for use with handles beginning with KXT.

⁽³⁾Shafts for use with handles beginning with OH.

IP54 protection for transmitted rotary handle⁽¹⁾

Type	XT1, XT2, XT3, XT4
	Fixed/plug-in Catalog number
IP54 protection for transmitted handle -RHE	KXTAERHEIP54

⁽¹⁾IEC rated only.

Flange handle⁽¹⁾

Type	XT1	XT3	XT2	XT4
	Catalog number	Catalog number	Catalog number	Catalog number
Flange Handle + Mechanism + 4ft Cable (NEMA 1,3R, 12, 4)	KXT1N12FLHDL4	KXT3N12FLHDL4	KXT2N12FLHDL4	KXT4N12FLHDL4
Flange Handle + Mechanism + 6ft Cable (NEMA 1,3R, 12, 4)	KXT1N12FLHDL6	KXT3N12FLHDL6	KXT2N12FLHDL6	KXT4N12FLHDL6
Flange Handle + Mechanism + 10ft Cable (NEMA 1,3R, 12, 4)	KXT1N12FLHDL10	KXT3N12FLHDL10	KXT2N12FLHDL10	KXT4N12FLHDL10
Flange Handle + Mechanism + 4ft Cable (NEMA 1,3R, 12, 4, 4X)	KXT1N4FLHDL4	KXT3N4FLHDL4	KXT2N4FLHDL4	KXT4N4FLHDL4
Flange Handle + Mechanism + 6ft Cable (NEMA 1,3R, 12, 4, 4X)	KXT1N4FLHDL6	KXT3N4FLHDL6	KXT2N4FLHDL6	KXT4N4FLHDL6
Flange Handle + Mechanism + 10ft Cable (NEMA 1,3R, 12, 4, 4X)	KXT1N4FLHDL10	KXT3N4FLHDL10	KXT2N4FLHDL10	KXT4N4FLHDL10
Flange handle spare parts				
Flange handle only (NEMA 1,3R,12,4)			KXTAN12FLHDL	
Flange handle only (NEMA 1,3R, 12, 4, 4X)			KXTAN4XFLHDL	
Flange handle hardware			KXTAFLHDLHW	
Flange mounting hardware		KXTBFLMTHW		KXTCFLMTHW

⁽¹⁾Consult ABB for availability

Ordering information for XT1, XT2, XT3, XT4 UL/CSA Accessories



Fixed padlock



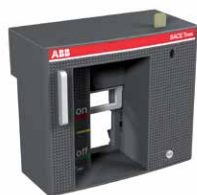
Key lock on the circuit breaker



Key lock on the handle



Key lock on the motor



Front for operating lever mechanism



Interlock

Locks

Padlock on the circuit breaker

Type	XT1, XT3 Catalog number	XT2, XT4 Catalog number
PLL removable lock with padlocks in open position	KXTBPLLREM	—
PLL fixed lock with padlocks in open position	KXTBPLLOP	KXTCPLLOP
PLL fixed lock with padlocks in open/closed position	KXTBPLLOPCL	KXTCPLLOPCL

Key lock on the circuit breaker

Type	XT1 Catalog number	XT3 Catalog number	XT2, XT4 Catalog number
KLC Ronis key lock open, different keys, removable in open position	KXT1KLCCBIF	KXT3KLCCBIF	KXTCKLCCBIF
KLC Ronis key lock open, same type A keys, removable in open position	KXT1KLCCBA	KXT3KLCCBA	KXTCKLCCBA
KLC Ronis key lock open, same type B keys, removable in open position	KXT1KLCCBB	KXT3KLCCBB	KXTCKLCCBB
KLC Ronis key lock open, same type C keys, removable in open position	KXT1KLCCBC	KXT3KLCCBC	KXTCKLCCBC
KLC Ronis key lock open, same type D keys, removable in open position	KXT1KLCCBD	KXT3KLCCBD	KXTCKLCCBD
KLC Ronis key lock open/closed, different keys, removable in both positions	KXT1KLCCBOPCL	KXT3KLCCBOPCL	KXTCKLCCBOPCL

Key lock on the rotary handle/Key lock on the front for locks

Type	XT1, XT3 Catalog number	XT2, XT4 Catalog number
RHL Ronis key lock open, different keys, RHx	—	KXTARHLDIF
RHL Ronis key lock open, same Type A keys, RHx	—	KXTARHLA
RHL Ronis key lock open, same Type B keys, RHx	—	KXTARHLB
RHL Ronis key lock open, same Type C keys, RHx	—	KXTARHLC
RHL Ronis key lock open, same Type D keys, RHx	—	KXTARHLD
RHL Ronis key lock open/closed, different keys, RHx	—	KXTARHLOPCL
RHL Ronis key lock open/closed, different keys, FLD	—	KXTCRHFLD

Key lock on the motor⁽¹⁾

Type	XT1, XT3 Catalog number	XT2, XT4 Catalog number
MOL-D Ronis key lock open, different keys	KXTBEMOLDIF	KXTCEMOLDIF
MOL-S Ronis key lock open, same type A keys	KXTBEMOLA	KXTCEMOLA
MOL-S Ronis key lock open, same type B keys	KXTBEMOLB	KXTCEMOLB
MOL-S Ronis key lock open, same type C keys	KXTBEMOLC	KXTCEMOLC
MOL-S Ronis key lock open, same type D keys	KXTBEMOLD	KXTCEMOLD
MOL-M Key lock against manual operation	—	KXTCEMOLMO

⁽¹⁾IEC rated only.

Front for operating lever mechanism

Type	XT2, XT4	
	Fixed/plug-in Catalog number	Withdrawable Catalog number
FLD front for operating lever mechanism	KXTCFLDFP	KXTCFLDW

Mechanical interlock

Type	XT1		XT2		XT3		XT4	
	Fixed	Plug-in	Fixed	Plug-in/ withdrawable	Fixed	Plug-in	Fixed	Plug-in/ withdrawable
	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
Chassis MIR-H	KXTAMIRHR							
Chassis MIR-V	KXTAMIRVR							
Plate	KXT1MIRPLF	KXT1MIRPLP	KXT2MIRPLF	KXT2MIRPLPW	KXT3MIRPLF	KXT3MIRPLP	KXT4MIRPLF	KXT4MIRPLPW

Sealable lock of thermal setting⁽¹⁾

Type	XT1, XT2, XT3, XT4 Catalog number
Lock on thermal setting for TMA or MA trip unit	KXTAEAASEALREL

⁽¹⁾IEC rated only.



RC Inst / RC Sel

Residual current devices

Residual current device⁽¹⁾

Type	XT1		XT2		XT3		XT4	
	3P	4P	3P	4P	3P	4P	3P	4P
	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
RC Sel Low 220mm	—	KXT1ERCSEL200-4	—	—	—	—	—	—
RC Inst	KXT1ERCINST-3	KXT1ERCINST-4	—	—	KXT3ERCINST-3	KXT3ERCINST-4	—	—
RC Sel	KXT1ERCSEL-3	KXT1ERCSEL-4	—	KXT2ERCSEL-4	KXT3ERCSEL-3	KXT3ERCSEL-4	—	KXT4ERCSEL-4
RC B Type	—	—	—	—	—	KXT3ERCB-4	—	—

⁽¹⁾IEC rated only.

Panel type residual current delay⁽¹⁾

Type	XT1, XT2, XT3, XT4	
	Catalog number	
RCQ020/A 115-230V AC	KXTAERCQ230	
RCQ020/A 415V AC	KXTAERCQ415	
Toroid closed Ø60mm	KXTTETOR60	
Toroid closed Ø110mm	KXTTETOR110	
Toroid closed Ø185mm	KXTTETOR185	

⁽¹⁾IEC rated only.

Installation

Bracket for mounting onto DIN rail

Type	XT1		XT2		XT3		XT4	
	3P	4P	3P	4P	3P	4P	Catalog number	Catalog number
	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
Kit DIN50022 ⁽¹⁾	KXT1EDIN-3	KXT1EDIN-4	KXTCEDINPL		KXT3EDIN-3	KXT3EDIN-4	KXTCEDINPL	
Kit DIN50022 UL	—	—	KXT2DIN-3	KXT2DIN-4	—	—	KXT4DIN-3	KXT4DIN-4
Kit DIN50022 XT1 + RC Low 220mm ⁽¹⁾	—	KXT1EDINRCSELPL	—	—	—	—	—	—
Kit DIN50022 XT1 + RC Sel/RC Inst ⁽¹⁾	—	KXT1EDINRCPL	—	—	—	—	—	—
Kit DIN50022 XT3 + RC Sel/RC Inst ⁽¹⁾	—	—	—	—	KXT3EDINRCPL		—	—

⁽¹⁾IEC rated only.



DIN guide

Ordering information for XT1, XT2, XT3, XT4 UL/CSA Accessories



Terminal cover



Sealable screw



Phase barriers

Terminals, terminal covers and phase barriers

Insulating terminal covers

Type	XT1		XT2		XT3		XT4	
	3p Catalog number	4p Catalog number	3p Catalog number	4p Catalog number	3p Catalog number	4p Catalog number	3p Catalog number	4p Catalog number
LTC low terminal covers ⁽¹⁾	KXT1LTC-3	KXT1LTC-4	KXT2LTC-3	KXT2LTC-4	KXT3LTC-3	KXT3LTC-4	KXT4LTC-3	KXT4LTC-4
HTC high terminal covers	KXT1HTC-3	KXT1HTC-4	KXT2HTC-3	KXT2HTC-4	KXT3HTC-3	KXT3HTC-4	KXT4HTC-3	KXT4HTC-4

⁽¹⁾Rear terminals, IEC only.

Sealable screws for terminal covers⁽¹⁾

Type	XT1	XT2	XT3	XT4
	Catalog number			
Kit with two sealable screws	KXTAESSEAL			

⁽¹⁾IEC rated only.

Phase barriers

Type	XT1, XT3		XT2, XT4	
	4 pcs Catalog number	6 pcs Catalog number	4 pcs Catalog number	6 pcs Catalog number
PB Height 25mm/0.98in	KXTBPB25-3	KXTBPB25-4	KXTCPB25-3	KXTCPB25-4
PB Height 100mm/3.94in	KXTBPB100-3	KXTBPB100-4	KXTCPB100-3	KXTCPB100-4
PB Height 200mm/7.87in	KXTBPB200-3	KXTBPB200-4	KXTCPB200-3	KXTCPB200-4



EF terminal



FCCu terminal



Front extended spread terminal - ES



Multi-cable terminals (MC)

Terminals

Type	XT1				XT2			
	3pcs	4pcs	6pcs	8pcs	3pcs	4pcs	6pcs	8pcs
	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
F Front terminals	KXT1F-3PC	KXT1F-4PC	KXT1F-6PC	KXT1F-8PC	KXT2F-3PC	KXT2F-4PC	KXT2F-6PC	KXT2F-8PC
F Front terminals for MCP	KXT1F3PCMCP	—	KXT1F6PCMCP	—	—	—	—	—
EF Extended front terminals	KXT1EF-3PC	KXT1EF-4PC	KXT1EF-6PC	KXT1EF-8PC	KXT2EF-3PC	KXT2EF-4PC	KXT2EF-6PC	KXT2EF-8PC
ES Extended spread terminals	KXT1ES-3PC	KXT1ES-4PC	KXT1ES-6PC	KXT1ES-8PC	KXT2ES-3PC	KXT2ES-4PC	KXT2ES-6PC	KXT2ES-8PC
FC CuAl Terminals for CuAl cables 100A, 14-1/0 AWG, 1x2.5...50mm ⁽²⁾⁽⁴⁾	—	—	—	—	—	—	—	—
FC CuAl Terminals for CuAl cables w/control tap 100A, 14-1/0 AWG, 1x2.5...50mm ⁽²⁾⁽⁴⁾	—	—	—	—	—	—	—	—
FC CuAl Terminals for CuAl cables 110A, 14-1/0 AWG, 1x2.5...50mm ⁽²⁾⁽⁴⁾	—	—	—	—	KXT2CUAL1-3PC	KXT2CUAL1-4PC	KXT2CUAL1-6PC	KXT2CUAL1-8PC
FC CuAl Terminals for CuAl cables 225A, 4 AWG-300 kcmil, 1x35...150mm ⁽²⁾⁽⁴⁾	—	—	—	—	—	—	—	—
FC CuAl Terminals for CuAl cables w/control tap 225A, 4 AWG-300 kcmil, 1x35...150mm ⁽²⁾⁽⁴⁾	—	—	—	—	—	—	—	—
FC CuAl Terminals for CuAl cables 250A, 250-350 kcmil, 1x120...185mm ⁽²⁾⁽⁴⁾	—	—	—	—	—	—	—	—
FC Cu Terminals for Cu cables 125A, 14-1/0 AWG, 1x2.5...50mm ²	KXT1CU-3PC	KXT1CU-4PC	KXT1CU-6PC	KXT1CU-8PC	—	—	—	—
FC Cu Terminals for Cu cables MCP, 14-1/0 AWG, 1x1.5...50mm ²	KXT1CUMCP-3PC	KXT1CUMCP-4PC	KXT1CUMCP-6PC	KXT1CUMCP-8PC	—	—	—	—
FC Cu Terminals for Cu cables 125A, 14-1/0 AWG, 1x2.5...95mm ²	—	—	—	—	KXT2CU-3PC	KXT2CU-4PC	KXT2CU-6PC	KXT2CU-8PC
FC Cu Terminals for Cu cables 10-250 AWG, 1x6...185mm ²	—	—	—	—	—	—	—	—
FC Cu Terminals for Cu cables, XT4X to 150A, 14-1/0 AWG, 1x2.5...50mm ²⁽³⁾	—	—	—	—	—	—	—	—
MC Multi cable terminals for Cu cables, 6x14-2 AWG, 6x2.5...35mm ²	KXT1MC-3PC	KXT1MC-4PC	KXT1MC-6PC	KXT1MC-8PC	KXT2MC-3PC	KXT2MC-4PC	KXT2MC-6PC	KXT2MC-8PC
MC Multi cable terminals for Cu cables, 6x12-2 AWG, 6x2.5...35mm ²	—	—	—	—	—	—	—	—
R Rear adjustable terminals ⁽¹⁾	KXT1ER-3PC	KXT1ER-4PC	KXT1ER-6PC	KXT1ER-8PC	KXT2ER-3PC	KXT2ER-4PC	KXT2ER-6PC	KXT2ER-8PC
R-RC Rear terminals for residual current ⁽¹⁾	—	KXT1ERRC-4PC	—	—	—	—	—	—
FB Flexibar Terminals ⁽¹⁾	KXT1EFB-3PC	KXT1EFB-4PC	KXT1EFB-6PC	KXT1EFB-8PC	KXT2EFB-3PC	KXT2EFB-4PC	KXT2EFB-6PC	KXT2EFB-8PC

Type	XT3				XT4			
	3pcs	4pcs	6pcs	8pcs	3pcs	4pcs	6pcs	8pcs
	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
F Front terminals	KXT3F-3PC	KXT3F-4PC	KXT3F-6PC	KXT3F-8PC	KXT4F-3PC	KXT4F-4PC	KXT4F-6PC	KXT4F-8PC
F Front terminals for MCP	—	—	—	—	—	—	—	—
EF Extended front terminals	KXT3EF-3PC	KXT3EF-4PC	KXT3EF-6PC	KXT3EF-8PC	KXT4EF-3PC	KXT4EF-4PC	KXT4EF-6PC	KXT4EF-8PC
ES Extended spread terminals	KXT3ES-3PC	KXT3ES-4PC	KXT3ES-6PC	KXT3ES-8PC	KXT4ES-3PC	KXT4ES-4PC	KXT4ES-6PC	KXT4ES-8PC
FC CuAl Terminals for CuAl cables 100A, 14-1/0 AWG, 1x2.5...50mm ⁽²⁾⁽⁴⁾	KXT3CUAL1-3PC	KXT3CUAL1-4PC	KXT3CUAL1-6PC	KXT3CUAL1-8PC	KXT4CUAL1-3PC	KXT4CUAL1-4PC	KXT4CUAL1-6PC	KXT4CUAL1-8PC
FC CuAl Terminals for CuAl cables w/control tap 100A, 14-1/0 AWG, 1x2.5...50mm ⁽²⁾⁽⁴⁾	KXT3CUAL1C-3PC	KXT3CUAL1C-4PC	—	—	KXT4CUAL1C-3PC	KXT4CUAL1C-4PC	—	—
FC CuAl Terminals for CuAl cables 110A, 14-1/0 AWG, 1x2.5...50mm ⁽²⁾⁽⁴⁾	—	—	—	—	—	—	—	—
FC CuAl Terminals for CuAl cables 225A, 4 AWG-300 kcmil, 1x35...150mm ⁽²⁾⁽⁴⁾	KXT3CUAL2-3PC	KXT3CUAL2-4PC	KXT3CUAL2-6PC	KXT3CUAL2-8PC	KXT4CUAL2-3PC	KXT4CUAL2-4PC	KXT4CUAL2-6PC	KXT4CUAL2-8PC
FC CuAl Terminals for CuAl cables w/control tap 225A, 4 AWG-300 kcmil, 1x35...150mm ⁽²⁾⁽⁴⁾	KXT3CUAL2C-3PC	KXT3CUAL2C-4PC	—	—	KXT4CUAL2C-3PC	KXT4CUAL2C-4PC	—	—
FC CuAl Terminals for CuAl cables 250A, 250-350 kcmil, 1x120...185mm ⁽²⁾⁽⁴⁾	—	—	—	—	KXT4CUAL3-3PC	KXT4CUAL3-4PC	KXT4CUAL3-6PC	KXT4CUAL3-8PC
FC Cu Terminals for Cu cables 125A, 14-1/0 AWG, 1x2.5...50mm ²	—	—	—	—	—	—	—	—
FC Cu Terminals for Cu cables MCP, 14-1/0 AWG, 1x1.5...50mm ²	—	—	—	—	—	—	—	—
FC Cu Terminals for Cu cables 125A, 14-1/0 AWG, 1x2.5...95mm ²	—	—	—	—	—	—	—	—
FC Cu Terminals for Cu cables 250A, 10-250 AWG, 1x6...185mm ²	KXT3CU-3PC	KXT3CU-4PC	KXT3CU-6PC	KXT3CU-8PC	KXT4CU-3PC	KXT4CU-4PC	KXT4CU-6PC	KXT4CU-8PC
FC Cu Terminals for Cu cables, XT4X to 150A, 14-1/0 AWG, 1x2.5...50mm ²⁽³⁾	—	—	—	—	KXT4XCU-3PC	KXT4XCU-4PC	—	—
MC Multi cable terminals for Cu cables, 6x14-2 AWG, 6x2.5...35mm ²	—	—	—	—	—	—	—	—
MC Multi cable terminals for Cu cables, 6x12-2 AWG, 6x2.5...35mm ²	KXT3MC-3PC	KXT3MC-4PC	KXT3MC-6PC	KXT3MC-8PC	KXT4MC-3PC	KXT4MC-4PC	KXT4MC-6PC	KXT4MC-8PC
R Rear adjustable terminals ⁽¹⁾	KXT3ER-3PC	KXT3ER-4PC	KXT3ER-6PC	KXT3ER-8PC	KXT4ER-3PC	KXT4ER-4PC	KXT4ER-6PC	KXT4ER-8PC
R-RC Rear terminals for residual current ⁽¹⁾	—	KXT3ERRC-4PC	—	—	—	—	—	—
FB Flexibar Terminals ⁽¹⁾	KXT3EFB-3PC	KXT3EFB-4PC	KXT3EFB-6PC	KXT3EFB-8PC	KXT4EFB-3PC	KXT4EFB-4PC	KXT4EFB-6PC	KXT4EFB-8PC

⁽¹⁾IEC rated only.

⁽²⁾Consult ABB for availability.

⁽³⁾For use with the XT4 X version up to 150A only. Note: XT4 X from 175-250A uses the standard 250A CU lug.

⁽⁴⁾Not available for XT4 X up to 150A.

Ordering information for XT1, XT2, XT3, XT4 UL/CSA Accessories



Ekip Display



Ekip LED Meter

Accessories for electronic trip units

General electronic trip unit accessories⁽¹⁾

Type	XT2		XT4	
	Fixed/plug-in Catalog number	Withdrawable Catalog number	Fixed/plug-in Catalog number	Withdrawable Catalog number
Ekip Display			KXTCEDISP	
Ekip LED Meter			KXTCELED	
Ekip Comm	KXTCECOMFP	KXTCECOMW	KXTCECOMFP	KXTCECOMW
HMI030 interface on front of panel			HMI030	
PR212/CI contactor control unit	—	—	1SDA050708R1	

⁽¹⁾IEC rated only.

Current sensor for external neutral⁽¹⁾

Type	XT2	XT4
	Catalog number	Catalog number
CT external neutral of 10A	KXT2ECT10	
CT external neutral of 25A	KXT2ECT25	
CT external neutral of 40A		KXT4ECT40
CT external neutral of 63A	KXT2ECT63	KXT4ECT63
CT external neutral of 100A	KXT2ECT100	KXT4ECT100
CT external neutral of 160A	KXT2ECT160	KXT4ECT160
CT external neutral of 250A		KXT4ECT250

⁽¹⁾IEC rated only.

Connection kits

Type	XT2, XT4	
	Fixed/plug-in Catalog number	Withdrawable Catalog number
24V DC auxiliary voltage kit for electronic trip units ⁽¹⁾	KXTCECAUXFP	KXTCECAUXW
External neutral connection kit	KXTCECNEFP	KXTCECNEW

⁽¹⁾IEC rated only.

Test and configuration units⁽¹⁾

Type	XT2, XT4
	Catalog number
Ekip TT - Trip test unit	ZEAKEPTT
Ekip T&P - Programming and test unit	EKIP

⁽¹⁾IEC rated only.



Ekip T&P unit



ATS021

Automatic transfer devices

ATS021-ATS022 Automatic transfer devices⁽¹⁾

	XT1, XT2, XT3, XT4
	Catalog number
ATS021	ATS021
ATS022	ATS022

⁽¹⁾IEC rated only.

Spare parts

	XT1	XT2	XT3	XT4	XT2	XT4
	Fixed/plug-in				Withdrawable	
	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
SA RC Sel/RC Inst - opening solenoid for the residual current device ⁽¹⁾	KXT1ESARCFP	KXT2ESARCFP	KXT3ESARCFP	KXT4ESARCFP	KXT2ESARCW	KXT4ESARCW
SA RC B Type - opening solenoid for the residual current device ⁽¹⁾	—	—	KXT3ESARCFPB	—	—	—
AUX-C - Loose cabled auxillary contact 250V AC ⁽²⁾	—	—	KXTAAUXCFP	—	—	KXTCEAUXCW
AUX-C - Loose cabled auxillary contact 24V DC ⁽²⁾	—	—	KXTAAUXCDFP	—	—	KXTCEAUXCDW
AUX-C - Loose cabled auxillary contact 250V AC 600V ⁽²⁾	—	—	KXTAAUXCFPHD	—	—	KXTCAUXCWH
AUX-C - Loose cabled auxillary contact 24V DC 600V ⁽²⁾	—	—	KXTAAUXCDFPHD	—	—	KXTCAUXCDWH

⁽¹⁾IEC rated only.

⁽²⁾Un-numbered cables.



Fixed part of withdrawable



Flange

Connectors for fixed part/moving part of withdrawable circuit breakers⁽¹⁾

	XT2, XT4
	Catalog number
1 connector for with 2 pins for SOR/UVR up to 400V	KXTCE2PINCONSOUV
1 connector with 3 pins for AUX up to 400V	KXTCE3PINCONAUX

⁽¹⁾IEC rated only.

Flanges for the compartment door⁽¹⁾

	XT1		XT2		XT3		XT4	
Type	3P	4P	3P	4P	3P	4P	3P	4P
	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number
Small "optional" flange for circuit breaker	—	—	—	—	—	—	—	—
Large "standard" flange for circuit breaker	KXT1EFLAFP-3	KXT1EFLAFP-4	KXT2EFLAFP-3	KXT2EFLAFP-4	KXT3EFLAFP-3	KXT3EFLAFP-4	KXT4EFLAFP-3	KXT4EFLAFP-4
Flange for MOD	—	KXTBEFLAMOD	—	—	—	KXTBEFLAMOD	—	—
Flange for MOE/MOE-E/FLD	—	—	—	KXTCEFLAMOEF	—	—	—	KXTCEFLAMOEF
Flange for direct handle RHD	—	—	—	—	—	—	—	—
Flange for residual current RC Sel/RC Inst	KXT1EFLARCFP-3	KXT1EFLARCFP-4	—	—	KXT3EFLARCFP-3	KXT3EFLARCFP-4	—	—
Flange for residual current RC Sel	—	—	—	KXT2EFLARCFP-4	—	—	—	KXT4EFLARCFP-4

⁽¹⁾IEC rated only.

Flanges for the compartment door for withdrawable versions⁽¹⁾

	XT2		XT4	
Type	3P	4P	3P	4P
	Catalog number	Catalog number	Catalog number	Catalog number
Small "optional" flange for circuit breaker	—	—	—	—
Large "standard" flange for circuit breaker	—	—	—	—
Flange for MOD	—	—	—	—
Flange for MOE/MOE-E/FLD	—	—	—	KXTCEFLAMOEW
Flange for direct handle RHD	—	—	—	KXTCEFLARHDW
Flange for residual current RC Sel/RC Inst	—	—	—	—
Flange for residual current RC Sel	—	KXT2EFLARCW-4	—	KXT4EFLARCW-4

⁽¹⁾IEC rated only.