Technical catalogue - Ordering Codes

SACE Tmax XT
New low voltage moulded-case circuit-breakers up to 250 A 50°C rated

Power and productivity
for a better world™

New SACE Tmax XT.
Simply XTraordinary.

Today a highly advanced range of circuit-breakers has been brought out, with unparalleled versatility of use and able to solve all installation problems brilliantly.
You can find the new SACE Tmax XT in the three-pole and four-pole, fixed, plug-in and withdrawable versions, fitted with the very latest generation thermomagnetic and electronic trip units, with the possibility of interchangeability. The new SACE Tmax XT set up a new technological standard and leave you free to think up and build installations with extraordinary performances. An extraordinary demonstration of ABB SACE's innovation capability.
Extraordinary latest generation electronics. Extraordinary coverage of all plant requirements. Extraordinary performances in compact dimensions.
Extraordinary simplicity of installation and putting into service.
Extraordinary range of accessories available.
This publication presents the Tmax XT circuit breakers up to 250A with thermomagnetic trip unit calibrated at 50°C.
The breakers Tmax XT with electronic trip unit are suitable for 50°C without derating.
For other versions and common accessories, please refer to the Tmax XT catalogue.

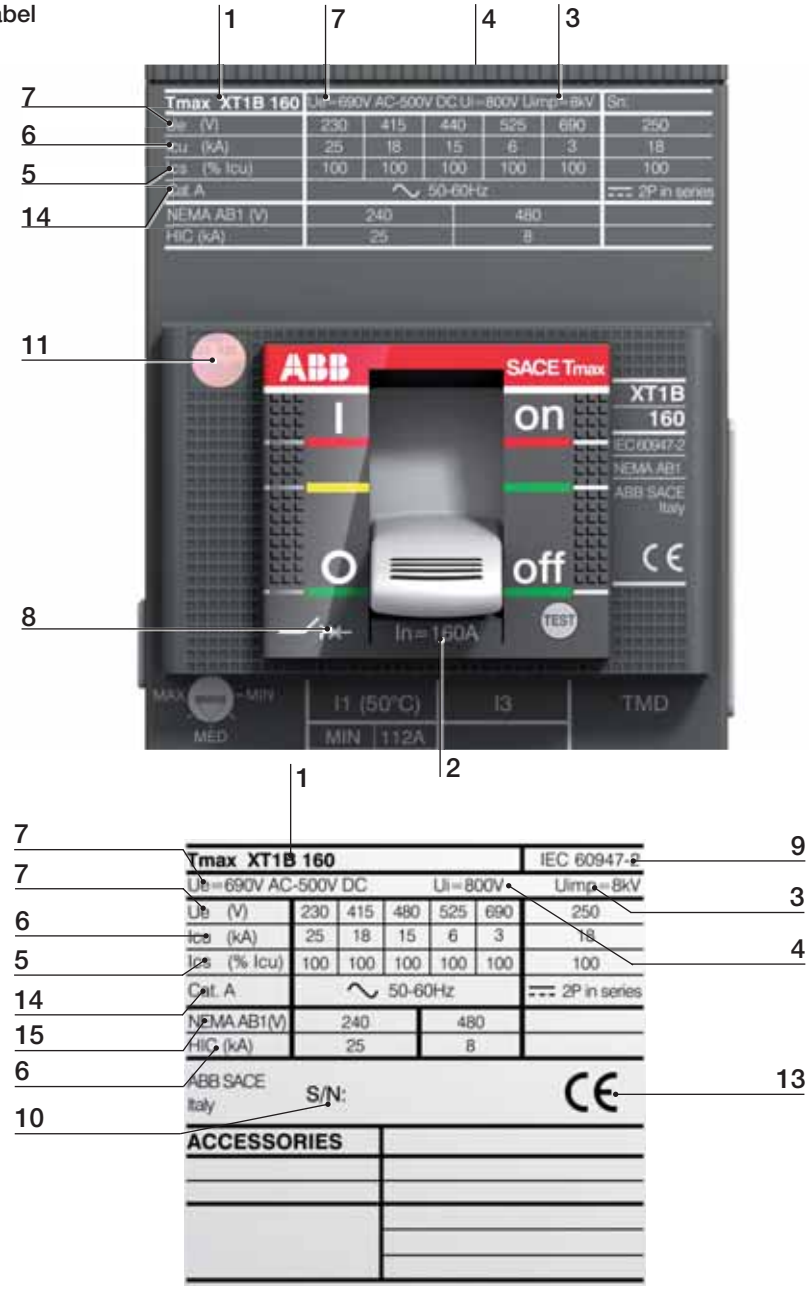
New SACE Tmax XT. Simply XTraordinary.

Identification of the SACE Tmax XT 50°C

Circuit-breakers

The characteristics of the circuit-breaker are given on the rating nameplate on the front of the circuit-breaker, and on the side rating plate.

Front label



1	Name of the circuit-breaker and performance level(*)
2	In: rated current of the circuit-breaker(*)
3	Uimp: rated impulse withstand voltage(*)
4	Ui: insulation voltage(*)
5	Ics rated short-circuit duty breaking capacity(*)
6	Icu: rated ultimate short-circuit breaking capacity(*)
7	Ue: rated service voltage(*)
8	Symbol of isolation behaviour(*)
9	Reference Standard IEC 60947-2(*)
10	Serial number
11	Anti-forgery logo
12	Test pushbutton
13	CE marking
14	Utilisation Category
15	Reference Standard NEMA-AB1

(*) In compliance with the IEC 60947-2 Standard

Circuit-breakers for power distribution 50°C

Main characteristics

SACE Tmax XT moulded-case circuit-breakers are the ideal solution for all distribution levels, from the main low voltage switchboard to the subswitchboards in the installation. They feature high specific let-through current peak and energy limiting characteristics that allow the circuits and equipment on the load side to be sized in an optimum way. SACE Tmax XT circuit-breakers with thermomagnetic and electronic trip units protect against overloads, short-circuits, earth faults and indirect contacts in low voltage distribution networks.

The SACE Tmax XT family of moulded-case circuit-breakers can be equipped with:

- thermomagnetic trip units for direct and alternating current network protection, using the physical properties of a bimetal and an electromagnet to detect the overloads and short-circuits. They are calibrated at a reference temperature of 50°C.
  Please refer to the Tmax XT main catalogue for the trip curves.
- electronic trip units for alternating current network protection. Releases with microprocessor technology obtain protection functions that make the operations extremely reliable and accurate. The power required for operating them correctly is supplied straight from the current sensors of the releases. This ensures that they trip even in single-phase conditions and on a level with the minimum setting.
  Circuit breakers with electronic trip units are suitable for use at 50°C without derating. For technical characteristics and ordering codes please refer to the main Tmax XT catalogue.

Characteristics of Electronic trip units SACE Tmax XT	
Operating temperature	-25°C...+70°C
Relative humidity	98%
Self-supplied	0.2xIn (single phase)[1] [2]
Auxiliary supply (where applicable)	24V DC ± 20%
Operating frequency	45...66Hz or 360...440Hz
Electromagnetic compatibility	IEC 60947-2 Annex F

[1] 0.32 x In for Ekip N-LS/I

[2] For 10A: 0.4In

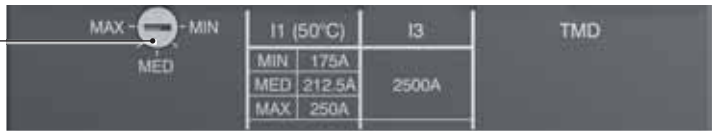
Example with XT2 125A

Rotary switch for magnetic protection setting

Rotary switch for thermal protection setting

Example with XT3 250A

Rotary switch for thermal protection setting



Circuit-breakers for power distribution 50°C

Thermomagnetic trip units

TMD (XT1 - XT3)

Main characteristics:

- protections:
  - against overload (L): adjustable protection threshold from 0.7...1xIn, with inverse long-time trip curve;
  - against instantaneous short-circuits (I): fixed 10xIn protection threshold, with instantaneous trip curve;
- 100% neutral protection in four-pole circuit-breakers. 50% neutral protection is only available for In≥125A;

TMD/TMA (XT2)

Main characteristics:

- protections:
  - against overload (L): adjustable protection threshold from 0.7...1xIn, with inverse long time trip curve;
  - against instantaneous short-circuit (I):
    - fixed protection threshold for In≤32A,
    - adjustable threshold beteewn 8…10xIn for 40A,
    - adjustable threshold beteewn 6…10xIn for 50A,
    - adjustable threshold beteewn 5…10xIn for In≥63A;
- 100% neutral protection in four-pole circuit-breakers. 50% neutral protection is only available for In≥125A;

XT1

TMD

Breaking capacity		C	C,N	C,N	C,N	C,N	C,N	C,N	C,N	C,N
L	In [A]	25	32	40	50	63	80	100	125	150
	Neutral [A] - 100%	25	32	40	50	63	80	100	125	150
I_1 = 0.7…1xIn	Neutral [A] - 50%	–	–	–	–	–	–	–	80	100
I	I_3 [A]	450	450	450	500	630	800	1000	1250	1500
	Neutral [A] - 100%	450	450	450	500	630	800	1000	1250	1500
I_3 = 10xIn	Neutral [A] - 50%	–	–	–	–	–	–	–	800	1000

XT2

TMD/TMA

L	In [A]	16	20	25	32	40	50	63	80	100	125
	Neutral [A] - 100%	16	20	25	32	40	50	63	80	100	125
I_1 = 0.7…1xIn	Neutral [A] - 50%	–	–	–	–	–	–	–	–	–	80
I	TMD	300	300	300	320						
	TMA					300…400	300…500	300…630	400…800	500…1000	625…1250
	Neutral [A] - 100%	300	300	300	320	300…400	300…500	300…630	400…800	500…1000	625…1250
	Neutral [A] - 50%	–	–	–	–	–	–	–	–	–	400…800

(1) Available only as complete circuit-breaker

XT3

TMD

Breaking capacity		N,S	N,S	C,N,S	C,N,S	C,N,S	C,N,S	C,N,S
L	In [A]	63	80	100	125	160	200	250
	Neutral [A] - 100%	63	80	100	125	160	200	250
I_1 = 0.7…1xIn	Neutral [A] - 50%	–	–	–	80	100	125	160
I	I_3 [A]	630	800	1000	1250	1600	2000	2500
	Neutral [A] - 100%	630	800	1000	1250	1600	2000	2500
I_3 = 10xIn	Neutral [A] - 50%	–	–	–	800	1000	1250	1600

Circuit-breakers for motors protection 50°C

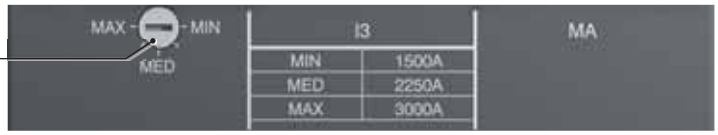
Magnetic trip units

MF/MA

Main characteristics:

- available for XT2, XT3 and XT4 in the three-pole version only, these trip units are mainly used for protecting motors, in conjunction with a thermal relay and a contactor;
- protections:
  - against instantaneous short-circuit (I) for XT2: for In≤12.5A the protection threshold I is fixed at 14xIn, whereas for In>12.5A the protection threshold I is adjustable from 6..14xIn;
  - against instantaneous short-circuit (I) for XT3: the protection threshold I is adjustable from 6..12xIn;
  - against instantaneous short-circuit (I) for XT4: the protection threshold I is adjustable from 5..10xIn;
- the magnetic protection setting is made by turning the relative cursor on the front of the release.
- for ordering codes refer to the main Tmax XT catalogue.
- the circuit-breakers MF/MA for motor protection are suitable for use at 50°C without derating.

Rotary switch for magnetic protection setting



XT2

MF/MA

	In [A]	1[1]	2[1]	4[1]	8.5[1]	12.5[1]	20	32	52	80	100
	I_3 = MF	14	28	56	120	175					
I_3 = 14xIn [A] **I_3 = 6..14xIn [A]**	I_3 = MA						120...280	192…448	314…728	480…1120	600...1400

[1] Available only as complete circuit-breaker

XT3

MA

	In [A]	100	125	160	200
I_3 = 6..12xIn	I_3 [A]	600…1200	750…1500	960…1920	1200…2400

XT4

MA

	In [A]	10[1]	12.5[1]	20	32	52	80	100	125	160	200
I_3 = 5..10xIn	I_3 [A]	50…100	62.5…125	100…200	160…320	260…520	400…800	500…1000	625…1250	800…1600	1000…2000

[1] Available only as complete circuit-breaker

Switch-disconnectors 50°C

Main characteristics

XT1D

XT3D

XT4D

The switch-disconnector (or, in short, disconnector) is a device created from the corresponding circuit-breakers (of which it features the same overall dimensions, versions, fastening mechanisms and ability to be fitted with accessories).
The main function of these devices is to disconnect the circuit they are installed in. In the open position, the disconnector disconnects and guarantees a sufficient insulation distance (between the contacts) to assure safety and to prevent an electrical arc from striking.
The switch-disconnectors are suitable for use at 50°C without derating.

Applications

Switch-disconnectors are generally used as:

- general disconnectors of subswitchboards;
- operating and disconnecting devices for lines, pan-assembliess or groups of equipment;
- bus-ties;
- general disconnecting devices for groups of machines;
- general group disconnecting devices for motor operation and protection;
- insulation of small tertiary distribution units.

Protection

A disconnector is unable to automatically break the short-circuit or overload current. For this reason, each switch-disconnector must be protected on the supply side by a coordinated device that safeguards it against short-circuits. The circuit-breaker able to act as a protection for each switch-disconnector is indicated in the table below.

Category of use

The CEI EN 60947-3 Standard defines the utilisation categories for disconnectors in accordance with the table below. Tmax XT disconnectors comply with the AC21A, AC22A and AC23A utilisation categories.

Class of use

Infrequent operation	Frequent operation	Typical applications
AC-21A	AC-21B	Control of resistive loads with overloads of modest entity
AC-22A	AC-22B	Control of mixed resistive and inductive loads with overloads of modest entity
AC-23A	AC-23B	Control of motors or other highly inductive loads

Characteristics of switch-disconnectors

			XT1D	XT3D	XT4D
Size		[A]	160	250	250
Rated operating current in class AC21, **Ie**		[A]	160	250	250
Rated operating current in class AC22, **Ie**		[A]	160	250	250
Rated operating current in class AC23, **Ie**		[A]	125	200	200
Poles		[Nr.]	3, 4	3, 4	3, 4
Rated service voltage, **Ue**	(AC) 50-60Hz	[V]	690	690	690
	(DC)	[V]	500	500	500
Rated insulation voltage, **Ui**		[V]	800	800	800
Rated impulse withstand voltage, **Uimp**		[kV]	8	8	8
Test voltage at industrial frequency for 1 min		[V]	3000	3000	3000
Rated breaking capacity in short-circuit, **Icm**	(Min) Disconnector only	[kA]	2.8	5.3	5.3
	(Max) With automatic circuit-breaker on supply side	[kA]	154	105	105
Rated short-time withstand current for 1s, **Icw**		[kA]	2	3	3.6
Versions			Fixed, Plug-in	Fixed, Plug-in	Fixed, Withdrawable, Plug-in

Ordering codes 50°C

Power distribution circuit-breakers

XT1C 160 TMD (50°C) - Fixed (F) - Front terminals (F)

Icu (415V) = 25kA				1SDA...R1	
Thermomagnetic trip unit - TMD	In	I_3		3 poles	4 poles
					N=100%
XT1C 160 TMD 25-450 F F 50°C	25	450		070083	070092
XT1C 160 TMD 32-450 F F 50°C	32	450		070084	070093
XT1C 160 TMD 40-450 F F 50°C	40	450		070085	070094
XT1C 160 TMD 50-500 F F 50°C	50	500		070086	070095
XT1C 160 TMD 63-630 F F 50°C	63	630		070087	070096
XT1C 160 TMD 80-800 F F 50°C	80	800		070088	070097
XT1C 160 TMD 100-1000 F F 50°C	100	1000		070089	070098
XT1C 160 TMD 125-1250 F F 50°C	125	1250		070090	070099
XT1C 160 TMD 150-1500 F F 50°C	150	1500		070091	070100

XT1N 160 TMD (50°C) - Fixed (F) - Front terminals (F)

Icu (415V) = 36kA				1SDA...R1	
Thermomagnetic trip unit - TMD	In	I_3		3 poles	4 poles
					N=100%
XT1N 160 TMD 32-450 F F 50°C	32	450		070101	070109
XT1N 160 TMD 40-450 F F 50°C	40	450		070102	070110
XT1N 160 TMD 50-500 F F 50°C	50	500		070103	070111
XT1N 160 TMD 63-630 F F 50°C	63	630		070104	070112
XT1N 160 TMD 80-800 F F 50°C	80	800		070105	070113
XT1N 160 TMD 100-1000 F F 50°C	100	1000		070106	070114
XT1N 160 TMD 125-1250 F F 50°C	125	1250		070107	070115
XT1N 160 TMD 150-1500 F F 50°C	150	1500		070108	070116

XT2N 160 TMD/TMA (50°C) - Fixed (F) - Front terminals (F)

Icu (415V) = 36kA				1SDA...R1	
Thermomagnetic trip unit - TMD/TMA	In	I_3		3 poles	4 poles
					N=100%
XT2N 160 TMD 16-300 F F 50°C	16	300		070117	070127
XT2N 160 TMD 20-300 F F 50°C	20	300		070118	070128
XT2N 160 TMD 25-300 F F 50°C	25	300		070119	070129
XT2N 160 TMD 32-320 F F 50°C	32	320		070120	070130
XT2N 160 TMA 40-400 F F 50°C	40	400		070121	070131
XT2N 160 TMA 50-500 F F 50°C	50	500		070122	070132
XT2N 160 TMA 63-630 F F 50°C	63	630		070123	070133
XT2N 160 TMA 80-800 F F 50°C	80	800		070124	070134
XT2N 160 TMA 100-1000 F F 50°C	100	1000		070125	070135
XT2N 160 TMA 125-1250 F F 50°C	125	1250		070126	070136

Ordering codes 50°C

Power distribution circuit-breakers

XT2S 160 TMD/TMA (50°C) - Fixed (F) - Front terminals (F)

Icu (415V) = 50kA				1SDA...R1	
Thermomagnetic trip unit - TMD/TMA	In	I_3		3 poles	4 poles
					N=100%
XT2S 160 TMD 16-300 F F 50°C	16	300		070137	070147
XT2S 160 TMD 20-300 F F 50°C	20	300		070138	070148
XT2S 160 TMD 25-300 F F 50°C	25	300		070139	070149
XT2S 160 TMD 32-320 F F 50°C	32	320		070140	070150
XT2S 160 TMA 40-400 F F 50°C	40	400		070141	070151
XT2S 160 TMA 50-500 F F 50°C	50	500		070142	070152
XT2S 160 TMA 63-630 F F 50°C	63	630		070143	070153
XT2S 160 TMA 80-800 F F 50°C	80	800		070144	070154
XT2S 160 TMA 100-1000 F F 50°C	100	1000		070145	070155
XT2S 160 TMA 125-1250 F F 50°C	125	1250		070146	070156

XT3C 250 TMD (50°C) - Fixed (F) - Front terminals (F)

Icu (415V) = 25kA				1SDA...R1	
Thermomagnetic trip unit - TMD	In	I_3		3 poles	4 poles
					N=100%
XT3C 250 TMD 100-1000 3p F F 50°C	100	1000		081814	
XT3C 250 TMD 125-1250 3p F F 50°C	125	1250		081815	
XT3C 250 TMD 160-1600 3p F F 50°C	160	1600		081816	
XT3C 250 TMD 200-2000 3p F F 50°C	200	2000		081817	
XT3C 250 TMD 250-2500 3p F F 50°C	250	2500		081818	

XT3N 250 TMD (50°C) - Fixed (F) - Front terminals (F)

Icu (415V) = 36kA				1SDA...R1	
Thermomagnetic trip unit - TMD	In	I_3		3 poles	4 poles
					N=100%
XT3N 250 TMD 63-630 F F 50°C	63	630		070157	070164
XT3N 250 TMD 80-800 F F 50°C	80	800		070158	070165
XT3N 250 TMD 100-1000 F F 50°C	100	1000		070159	070166
XT3N 250 TMD 125-1250 F F 50°C	125	1250		070160	070167
XT3N 250 TMD 160-1600 F F 50°C	160	1600		070161	070168
XT3N 250 TMD 200-2000 F F 50°C	200	2000		070162	070169
XT3N 250 TMD 250-2500 F F 50°C	250	2500		070163	070170

XT3S 250 TMD (50°C) - Fixed (F) - Front terminals (F)

Icu (415V) = 50kA				1SDA...R1	
Thermomagnetic trip unit - TMD	In	I_3		3 poles	4 poles
					N=100%
XT3S 250 TMD 63-630 F F 50°C	63	630		070171	070178
XT3S 250 TMD 80-800 F F 50°C	80	800		070172	070179
XT3S 250 TMD 100-1000 F F 50°C	100	1000		070173	070180
XT3S 250 TMD 125-1250 F F 50°C	125	1250		070174	070181
XT3S 250 TMD 160-1600 F F 50°C	160	1600		070175	070182
XT3S 250 TMD 200-2000 F F 50°C	200	2000		070176	070183
XT3S 250 TMD 250-2500 F F 50°C	250	2500		070177	070184

Ordering codes 50°C

Switch-disconnectors

XT1D 160 - Fixed (F) - Front terminals (F)		
Icw = 2 kA	1SDA...R1	
	3 poles	4 poles
XT1D 160 F F	068208	068209

XT3D 250 - Fixed (F) - Front terminals (F)		
Icw = 3 kA	1SDA...R1	
	3 poles	4 poles
XT3D 250 F F	068210	068211

XT4D 250 - Fixed (F) - Front terminals (F)		
Icw = 3.6 kA	1SDA...R1	
	3 poles	4 poles
XT4D 250 F F	068212	068213

Ordering codes

Common accessories

Uncabled SOR - PS SOR - UVR

Cabled SOR - PS SOR - UVR

Direct rotary handle (RHD)

Transmitted rotary handle (RHE)

Fixed padlock

	1SDA....R1
Shunt Opening release (SOR)	
SOR 110...127V AC / 110...125V DC uncabled version	066316
SOR 220...240V AC / 220...250V DC uncabled version	066317
SOR-C 110-127V AC / 110-125V DC cabled version	066324
SOR-C 220-240V AC / 220-250V DC cabled version	066325
Undervoltage release (UVR)	
UVR 110...127V AC / 110...125V DC uncabled version	066391
UVR 220...240V AC / 220...250V DC cabled version	066392
UVR-C 110-127V AC / 110-125V DC cabled version	066398
UVR-C 220-240V AC / 220-250V DC cabled version	066399
Auxillary Contacts (Aux)	
AUX 250V AC uncabled version	066422
AUX-C 1Q+1SY 250V cabled version	066431
AUX-C 2Q+1SY 250V cabled version	066433
Rotary Handles	
RHD Normal Direct Handle (XT1/XT3)	066475
RHE Normal Transmitted Handle (XT1/XT3)	066479
RHD Normal Direct Handle (XT2/XT4)	069053
RHE Normal Transmitted Handle (XT2/XT4)	069055
Motor Operator	
MOD 220...250V AC/DC (XT1/XT3)	066460
MOE 220...250V AC/DC (XT2/XT4)	066466
Padlock on the circuit breaker	
PLL Fixed lock with padlocks in open position (XT1/XT3)	066589
PLL Fixed lock with padlocks in open/closed position (XT1/XT3)	066591
PLL Fixed lock with padlocks in open position (XT2/XT4)	066590
PLL Fixed lock with padlocks in open/closed position (XT2/XT4)	066592

Note:

Above accessories refer to the breakers in fixed version. For a complete list of available accessories please refer to the main Tmax XT catalogue.

Ordering codes 50°C

Terminals

XT1

Terminals

Type	1SDA...R1			
	3 pcs	4 pcs	6 pcs	8 pcs
FC CuAl Terminals for CuAl cables 1x1.5...50mm²	067151	067152	067153	067154
FC CuAl Terminals for CuAl cables 1x35...95mm²	067155	067156	067157	067158
FC CuAl Terminals for CuAl cables 1x120...240mm² + ADP	067159	067160	067161	067162
FC Cu Terminals for Cu cables	066905	066906	066907	066908
EF Extended front terminals	066865	066866	066867	066868
ES Extended spread front terminals	066889	066890	066891	066892
R Rear Adjustable Terminals	066937	066938	066939	066940
R-RC Rear terminals for Residual current		066953		

XT2

Terminals

Type	1SDA...R1			
	3 pcs	4 pcs	6 pcs	8 pcs
FC CuAl Terminals for CuAl cables 1x1...95mm²	067163	067164	067165	067166
FC CuAl Terminals for CuAl cables 1x70...185mm²	067167	067168	067169	067170
FC CuAl Terminals for CuAl cables 1x120...240mm²+ ADP	067171	067172	067173	067174
FC CuAl Terminals for CuAl cables 2x35...95mm²	067175	067176	067177	067178
FC Cu Terminals for Cu cables	066909	066910	066911	066912
EF Extetnded front terminals	066869	066870	066871	066872
ES Extended spread front terminals	066893	066894	066895	066896
R Rear adjustable Terminals	066941	066942	066943	066944

XT3

Terminals

Type	1SDA...R1			
	3 pcs	4 pcs	6 pcs	8 pcs
FC CuAl terminals for CuAl cables 1x95...185mm2	067179	067180	067181	067182
FC CuAl terminals for CuAl cables 1x120...240mm2 + ADP	067183	067184	067185	067186
FC CuAl terminals for CuAl cables 2x35...150mm2	067187	067188	067189	067190
FC CuAl terminals for CuAl cables 1x35...150mm2	066274	066930	066584	066586
FC Cu terminals for Cu cables	066913	066914	066915	066916
EF Extetnded front terminals	066873	066874	066875	066876
ES Extended spread front terminals	066897	066898	066899	066900
R Rear adjustable terminals	066945	066946	066947	066948

Note on ordering codes:

Please refer to the main Tmax XT catalogue for the complete list of accessories like kit for plug-in or draw-out, fixed parts and more.

Contact us

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1SDC210064D0201 – 2015.09 - 1000 - CAL - Printed in UAE

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