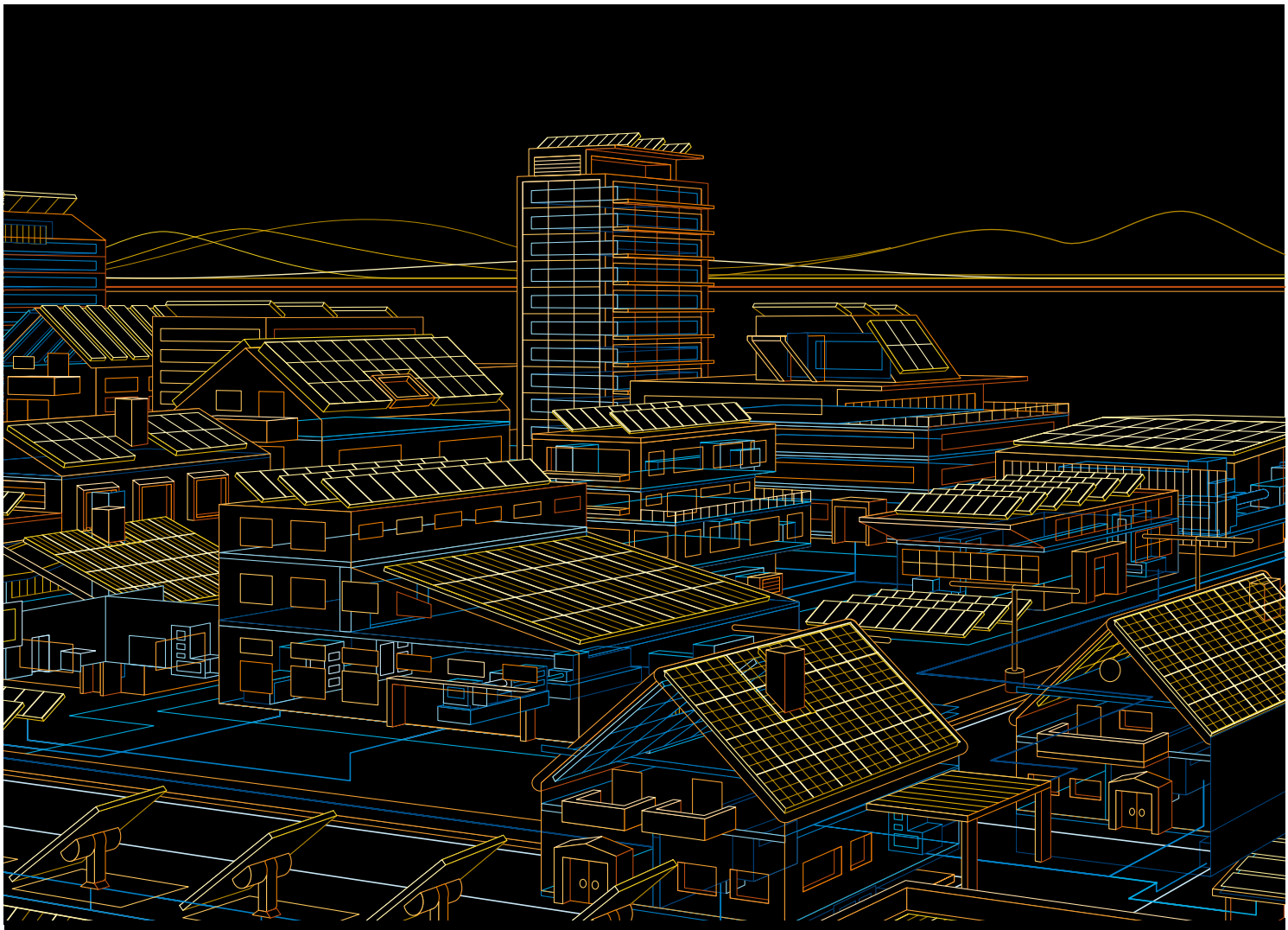


With effect from 15 March 2013

Low Voltage Products
Price list

Power and productivity
for a better world™

ABB low voltage products

ABB is a global leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. ABB in India serves customers in process, manufacturing and consumer industries, utilities, the oil & gas sector and infrastructure markets through a wide manufacturing and marketing network.

ABB, a market leader in low voltage products and applications offers the widest range of high quality products and systems, backed by in-depth application know-how. In putting together its portfolio, ABB has taken care to address not only the core technologies but also systems and services that support customers throughout the life cycle of the product.

ABB's product range serves the diverse needs of customers, offering value for money and high levels of quality and reliability. These products are backed by the technological expertise of ABB's centres of excellence across the globe, each of which excel in a specific range of low voltage products.

ABB's low voltage products offering in India are designed, manufactured and tested in-house in conformance with requirements of the ISO 9000 series. These products conform to the latest IEC standards, EN specifications, national standards such as BS, VDE, etc., in addition to the "CE" mark.

Contents

ABB's comprehensive range of breakers and switches

The range of ABB breakers and switches ranks amongst the most extensive on the market with a full range of innovative solutions for various applications, helping to optimise resources, reduce energy costs, boost productivity.

- Moulded case circuit breakers
- Air circuit breakers
- HRC fuse & Fuse base
- Switch fuse units
- Enclosed switch fuse
- Load break switches
- Changeover switches - Manual & Motorized
- Auto transfer switches
- Cam switches
- Cable distribution cabinet - Kabeldon
- Easyline switch disconnector fuses
- Switches for DC application
- Photovoltaic MCCBs

Emax - Low voltage air circuit breakers

- CT (Rogowski coil) range of 400 - 6300A (E1,E2,E3,E4 and E6) with breaking capacity range of 42-150KA
- Configured breakers are now available in E1, E2 and E3 frames
- SACE Emax circuit-breakers and their accessories conform to the international IEC 60947, EN 60947 CEI EN 60947 and IEC 61000 standards and comply with following EC directives “Low Voltage Directive” (LVD) no 73/23 EEC
- “Electromagnetic Compatibility Directive” (EMC) nr. 89/336 EEC
- Complete range of common accessories
- Double insulation
- Same height and depth for the whole range
- Protection releases provide complete set of standard protection function, advanced protection functions, Measurement functions
- Optional modules (measurements, signalling, communication, wireless com) to upgrade the protection releases
- Neutral protection from OFF to 200%
- Interchangeability of releases
- Low voltage switch disconnectors and automatic circuit breakers for direct current applications is available up to 5000A, 1000VDC

Note : Please contact the nearest sales office for the prices

Faults: no problem

Extremely simple

Completely new protection releases

Modularity

Emax - Low voltage air circuit breakers

Configured breakers		Ordering code for Emax - 3 pole		
		PR121 LI	PR121 LSIG	PR122 LSIG
E1 - Withdrawable fixed oart - WFP - HR-HR		1SDA059666R1		
E1 - 50KA -Withdrawable moving part - WMP	800 A Manual	1SDA055712R1	1SDA055714R1	1SDA055717R1
	800 A Electrical	1SYN55500100001	1SYN55500100017	1SYN55500100049
	1000 A Manual	1SDA059214R1	1SDA059222R1	1SDA059234R1
	1000 A Electrical	1SYN55500100002	1SYN55500100018	1SYN55500100050
	1250 A Manual	1SDA055744R1	1SDA055746R1	1SDA055749R1
	1250 A Electrical	1SYN55500100003	1SYN55500100019	1SYN55500100051
	1600 A Manual	1SDA055776R1	1SDA055778R1	1SDA055781R1
	1600 A Electrical	1SYN55500100004	1SYN55500100020	1SYN55500100052

Configured breakers		Ordering code for Emax - 4 pole		
		PR121 LI	PR121 LSIG	PR122 LSIG
E1 - Withdrawable Fixed Part - WFP - HR-HR		1SDA059762R1		
E1 - 50KA -Withdrawable moving part - WMP	800 A Manual	1SDA055720R1	1SDA055722R1	1SDA055725R1
	800 A Electrical	1SYN55500100081	1SYN55500100097	1SYN55500100129
	1000 A Manual	1SDA059216R1	1SDA059224R1	1SDA059236R1
	1000 A Electrical	1SYN55500100082	1SYN55500100098	1SYN55500100130
	1250 A Manual	1SDA055752R1	1SDA055754R1	1SDA055757R1
	1250 A Electrical	1SYN55500100083	1SYN55500100099	1SYN55500100131
	1600 A Manual	1SDA055784R1	1SDA055786R1	1SDA055789R1
	1600 A Electrical	1SYN55500100084	1SYN55500100100	1SYN55500100132

Configured breakers		Ordering code for Emax - 3 Pole		
		PR121 LI	PR121 LSIG	PR122 LSIG
E2 - Withdrawable fixed part - WFP-HR-HR		1SDA059667R1		
E2 - 65KA -Withdrawable moving part - WMP	2000 A Manual	1SDA055936R1	1SDA055938R1	1SDA055941R1
	2000 A Electrical	1SYN55500100008	1SYN55500100024	1SYN55500100056

Configured breakers		Ordering code for Emax - 4 Pole		
		PR121 LI	PR121 LSIG	PR122 LSIG
E2 - Withdrawable fixed part - WFP-HR-HR		1SDA059763R1		
E2 - 65KA -Withdrawable moving part - WMP	2000 A Manual	1SDA055944R1	1SDA055946R1	1SDA055949R1
	2000 A Electrical	1SYN55500100088	1SYN55500100104	1SYN55500100136

Configured breakers		Ordering code for Emax - 3 Pole		
		PR121 LI	PR121 LSIG	PR122 LSIG
E3 - Withdrawable fixed part - WFP - HR-HR		1SDA059669R1		
E3 - 65KA -Withdrawable moving part - WMP	2500 A Manual	1SDA056128R1	1SDA056130R1	1SDA056133R1
	2500 A Electrical	1SYN55500100009	1SYN55500100025	1SYN55500100057
	3200 A Manual	1SDA056160R1	1SDA056162R1	1SDA056165R1
	3200 A Electrical	1SYN55500100010	1SYN55500100026	1SYN55500100058

Configured Breakers		Ordering code for Emax - 4 Pole		
		PR121 LI	PR121 LSIG	PR122 LSIG
E3 - Withdrawable fixed part - WFP - HR-HR		1SDA059765R1		
E3 - 65KA -Withdrawable moving part - WMP	2500 A Manual	1SDA056136R1	1SDA056138R1	1SDA056141R1
	2500 A Electrical	1SYN55500100089	1SYN55500100105	1SYN55500100137
	3200 A Manual	1SDA056168R1	1SDA056170R1	1SDA056173R1
	3200 A Electrical	1SYN55500100090	1SYN55500100106	1SYN55500100138

Note :
1. Withdrawable fixed parts (WFP) and withdrawable moving parts (WMP) are to be ordered together for a complete breaker
2. Electrical drawout breakers mentioned above includes - 240 volts of shunt closing, shunt opening, motor operator and auxillary contacts (5NO + 5NC) mounted on the breaker, for any other voltages please contact our nearest sales office
3. For other current rating and breaking capacity ACB requirement, please contact our nearest sales office

Tmax moulded case circuit breakers

Tmax guarantee for reliable performance with smaller foot prints, easy installation and increased safety with double insulation.

The Tmax series are particularly suitable for secondary distribution in AC/DC and provides solution for every application

Scope:
Tmax series is offered in seven frame sizes with application in industrial, commercial and residential purposes. Available for both AC and DC networks of low voltage application. Tmax is suitable applications in
- Power distribution
- Motor protection application
- Generator application

Device range:
To meet different requirements, Tmax series is available in the following ranges:
- Automatic circuit breakers for AC & DC
- Automatic circuit breakers for advanced zone selectivity
- Automatic circuit breakers for motor protection
- Switch disconnectors
- Automatic circuit breakers for applications up to 1,150 V for AC and 1,000 V for DC

Available versions are 3P & 4P in fixed (T1 to T7), plug-in(T2 to T5) and withdrawable(T4 to T7).

Tmax circuit breakers are offered with standardized accessories providing flexibility to customers.

Tmax range is available in both thermo magnetic and electronic protection releases

Specific features:
Tmax is one of best circuit breaker in the industry when performance/size ratio is compared. The specially designed contact system and arc chutes guarantee let- through energy is limited in safe guarding downstream connected equipment.

Tmax circuit breakers offered in 7 frame sizes provides versatile functionality and flexibility to customers in selecting optimal rating based on performance requirement.

Tmax power distribution circuit breakers

Type	Iu (40° C)[A]	Ue [V]		Category	Release	Icu (380 - 415 V AC) [kA]									
		AC	DC			16	25	36	50	70	85	100	120	150	200
T1	160	690	500	A	TMD	B	C	N							
T2	160	690	500	A	MA (100 A) TMD MF (12,5 A) PR221DS			N	S	H	L				
T3	250	690	500	A	MA TMD TMG			N	S						
T4	250 320	690 1150	750 1000	A	MA (200 A) TMD (50 A) TMA (250 A) PR221DS PR222DS/MP PR223DS/EF			N	S	H			L		V
T5	400 630	690 1150	750 1000	B (400 A) A (630 A)	TMA (500 A) TMG (500 A) PR221DS PR222DS/MP PR223DS/EF			N	S	H			L		V
T6	630 800 1000	690 1150	750 1000	B (630A - 800 A) A (1000 A)	TMA (800 A) PR221DS PR222DS/MP PR223DS/EF			N	S	H		L			
T7	800 1000 1250 1600	690		B	PR231/P PR232/P PR331/P PR332/P				S	H			L	V	

Trip Units

Thermal magnetic trip units
- MA - Magnetic only trip unit with adjustable magnetic thresholds for motor protection
- TMF - Fixed thermal and fixed magnetic for power distribution
- TMD - Adjustable thermal (70-100%of In) and fixed magnetic (10 x In) for power distribution
- TMA - Adjustable thermal (70-100% of In) and adjustable magnetic (5-10 of In) for power distribution
- TMG - Adjustable thermal (70-100% of In) and low fixed magnetic (3 x In) for generator protection

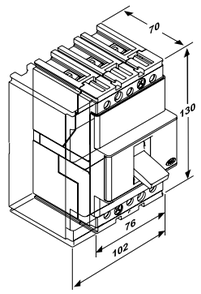
Microprocessor based electronic trip units

	L = 0.40 - 1 of In		L = 0.4 - 1 of In		L = 0.4 - 1 of In		L = 0.4 - 1 of In
PR221	S = 1 - 10 of In	PR222	S = 0.6 - 10 of In	PR231	S = 1 - 10 of In	PR331	S = 0.6 - 10 of In
	I = 1 - 10 of In		I = 1.5 - 12 of In		I = 1 - 12 of In		I = 1.5 - 15 of In
			G = 0.2 - 1 of In				G = 0.2 - 1 of In

PR 223 EF Early fault detection and prevention from T4 - T7. Details on request

Tmax power distribution circuit breakers

T1



Breaking Capacity at 415VAC		
	Icu	Ics(Icu)
B1P	25KA @ 240VAC	75%
B	16KA	100%
C	25KA	100%
N	36KA	75%

TMF

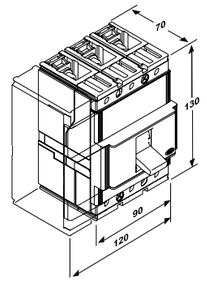
In (A)	Poles	T1B 1P 160 F FC Cu Icu = 25KA, Ics = 75%(Icu) Ordering Code	M.R.P.
16	1	1SDA052616R1	Upon Req.
20	1	1SDA052617R1	Upon Req.
25	1	1SDA052618R1	Upon Req.
32	1	1SDA052619R1	Upon Req.
40	1	1SDA052620R1	Upon Req.
50	1	1SDA052621R1	Upon Req.
63	1	1SDA052622R1	Upon Req.
80	1	1SDA052623R1	Upon Req.
100	1	1SDA052624R1	Upon Req.
125	1	1SDA052625R1	Upon Req.
160	1	1SDA052626R1	Upon Req.

TMD

In	Poles	T1B 160 F FC Cu Icu = 16KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T1C 160 F FC Cu Icu = 25KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T1N 160 F FC Cu Icu = 36KA, Ics = 75%(Icu) Ordering Code	M.R.P.
16	3	1SDA050870R1	5,500	-	-	-	-
20	3	1SDA050871R1	5,500	-	-	-	-
25	3	1SDA050872R1	5,500	1SDA050894R1	5,800	-	-
32	3	1SDA050873R1	5,500	1SDA050895R1	5,800	1SDA050917R1	7,300
40	3	1SDA050874R1	5,500	1SDA050896R1	5,800	1SDA050918R1	7,300
50	3	1SDA050875R1	5,500	1SDA050897R1	5,800	1SDA050919R1	7,300
63	3	1SDA050876R1	5,500	1SDA050898R1	5,800	1SDA050920R1	7,300
80	3	1SDA050877R1	5,500	1SDA050899R1	5,800	1SDA050921R1	7,300
100	3	1SDA050878R1	5,500	1SDA050900R1	5,800	1SDA050922R1	7,300
125	3	1SDA050879R1	7,700	1SDA050901R1	9,000	1SDA050923R1	9,600
160	3	1SDA050880R1	9,000	1SDA050902R1	12,000	1SDA050924R1	12,500
16	4	1SDA050881R1	7,600	-	-	-	-
20	4	1SDA050882R1	7,600	-	-	-	-
25	4	1SDA050883R1	7,600	1SDA050905R1	8,200	-	-
32	4	1SDA050884R1	7,600	1SDA050906R1	8,200	1SDA050928R1	9,000
40	4	1SDA050885R1	7,600	1SDA050907R1	8,200	1SDA050929R1	9,000
50	4	1SDA050886R1	7,600	1SDA050908R1	8,200	1SDA050930R1	9,000
63	4	1SDA050887R1	7,600	1SDA050909R1	8,200	1SDA050931R1	9,000
80	4	1SDA050888R1	7,600	1SDA050910R1	8,200	1SDA050932R1	9,000
100	4	1SDA050889R1	7,600	1SDA050911R1	8,200	1SDA050933R1	9,000
125	4	1SDA050890R1	9,700	1SDA050912R1	10,400	1SDA050934R1	11,400
160	4	1SDA050936R1	13,000	1SDA050937R1	13,700	1SDA050938R1	15,000

Tmax power distribution circuit breakers

T2



Breaking Capacity at 415VAC		
	Icu	Ics(Icu)
N	36KA	100%
S	50KA	100%
H	70KA	100%

TMD

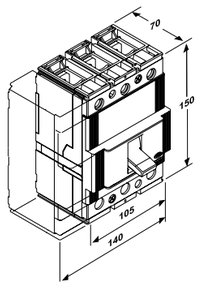
In	Poles	T2N 160 F F Icu = 36KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T2S 160 F F Icu = 50KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T2H 160 F F Icu = 70KA, Ics = 100%(Icu) Ordering Code	M.R.P.
1.6	3	1SDA050940R1	9,000	1SDA050984R1	11,000	1SDA051028R1	14,100
2	3	1SDA050941R1	9,000	1SDA050985R1	11,000	1SDA051029R1	14,100
2.5	3	1SDA050942R1	9,000	1SDA050986R1	11,000	1SDA051030R1	14,100
3.2	3	1SDA050943R1	9,000	1SDA050987R1	11,000	1SDA051031R1	14,100
4	3	1SDA050944R1	9,000	1SDA050988R1	11,000	1SDA051032R1	14,100
5	3	1SDA050945R1	9,000	1SDA050989R1	11,000	1SDA051033R1	14,100
6.3	3	1SDA050946R1	9,000	1SDA050990R1	11,000	1SDA051034R1	14,100
8	3	1SDA050947R1	9,000	1SDA050991R1	11,000	1SDA051035R1	14,100
10	3	1SDA050948R1	9,000	1SDA050992R1	11,000	1SDA051036R1	14,100
12.5	3	1SDA050949R1	9,000	1SDA050993R1	11,000	1SDA051037R1	14,100
16	3	1SDA050950R1	9,000	1SDA050994R1	11,000	1SDA051038R1	14,100
20	3	1SDA050951R1	9,000	1SDA050995R1	11,000	1SDA051039R1	14,100
25	3	1SDA050952R1	9,000	1SDA050996R1	11,000	1SDA051040R1	14,100
32	3	1SDA050953R1	9,000	1SDA050997R1	11,000	1SDA051041R1	14,100
40	3	1SDA050954R1	9,000	1SDA050998R1	11,000	1SDA051042R1	14,100
50	3	1SDA050955R1	9,000	1SDA050999R1	11,000	1SDA051043R1	14,100
63	3	1SDA050956R1	9,000	1SDA051000R1	11,000	1SDA051044R1	14,100
80	3	1SDA050957R1	9,000	1SDA051001R1	11,000	1SDA051045R1	14,100
100	3	1SDA050958R1	9,000	1SDA051002R1	11,000	1SDA051046R1	14,100
125	3	1SDA050959R1	10,200	1SDA051003R1	14,000	1SDA051047R1	18,800
160	3	1SDA050960R1	13,700	1SDA051004R1	17,500	1SDA051048R1	22,200
1.6	4	1SDA050962R1	11,500	1SDA051006R1	14,200	1SDA051050R1	17,500
2	4	1SDA050963R1	11,500	1SDA051007R1	14,200	1SDA051051R1	17,500
2.5	4	1SDA050964R1	11,500	1SDA051008R1	14,200	1SDA051052R1	17,500
3.2	4	1SDA050965R1	11,500	1SDA051009R1	14,200	1SDA051053R1	17,500
4	4	1SDA050966R1	11,500	1SDA051010R1	14,200	1SDA051054R1	17,500
5	4	1SDA050967R1	11,500	1SDA051011R1	14,200	1SDA051055R1	17,500
6.3	4	1SDA050968R1	11,500	1SDA051012R1	14,200	1SDA051056R1	17,500
8	4	1SDA050969R1	11,500	1SDA051013R1	14,200	1SDA051057R1	17,500
10	4	1SDA050970R1	11,500	1SDA051014R1	14,200	1SDA051058R1	17,500
12.5	4	1SDA050971R1	11,500	1SDA051015R1	14,200	1SDA051059R1	17,500
16	4	1SDA050972R1	11,500	1SDA051016R1	14,200	1SDA051060R1	17,500
20	4	1SDA050973R1	11,500	1SDA051017R1	14,200	1SDA051061R1	17,500
25	4	1SDA050974R1	11,500	1SDA051018R1	14,200	1SDA051062R1	17,500
32	4	1SDA050975R1	11,500	1SDA051019R1	14,200	1SDA051063R1	17,500
40	4	1SDA050976R1	11,500	1SDA051020R1	14,200	1SDA051064R1	17,500
50	4	1SDA050977R1	11,500	1SDA051021R1	14,200	1SDA051065R1	17,500
63	4	1SDA050978R1	11,500	1SDA051022R1	14,200	1SDA051066R1	17,500
80	4	1SDA050979R1	11,500	1SDA051023R1	14,200	1SDA051067R1	17,500
100	4	1SDA050980R1	11,500	1SDA051024R1	14,200	1SDA051068R1	17,500
125	4	1SDA051115R1	13,000	1SDA051117R1	18,000	1SDA051119R1	21,500
160	4	1SDA051116R1	16,000	1SDA051118R1	21,000	1SDA051120R1	26,800

T2

PR221 DS-LS/I

In	Poles	T2N 160 F F Icu = 36KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T2S 160 F F Icu = 50KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T2H 160 F F Icu = 70KA, Ics = 100%(Icu) Ordering Code	M.R.P.
10	3	1SDA051123R1	15,800	1SDA051133R1	19,000	1SDA051143R1	20,000
25	3	1SDA051124R1	15,800	1SDA051134R1	19,000	1SDA051144R1	20,000
63	3	1SDA051125R1	15,800	1SDA051135R1	19,000	1SDA051145R1	20,000
100	3	1SDA051126R1	15,800	1SDA051136R1	19,000	1SDA051146R1	20,000
160	3	1SDA051127R1	19,600	1SDA051137R1	25,500	1SDA051147R1	27,000
10	4	1SDA051128R1	20,500	1SDA051138R1	24,000	1SDA051148R1	25,300
25	4	1SDA051129R1	20,500	1SDA051139R1	24,000	1SDA051149R1	25,300
63	4	1SDA051130R1	20,500	1SDA051140R1	24,000	1SDA051150R1	25,300
100	4	1SDA051131R1	20,500	1SDA051141R1	24,000	1SDA051151R1	25,300
160	4	1SDA051613R1	27,000	1SDA051614R1	33,500	1SDA051615R1	34,500

T3



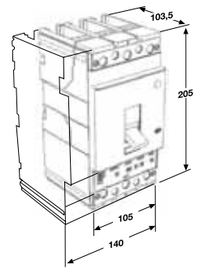
Breaking Capacity at 415VAC

	Icu	Ics(Icu)
N	36KA	75%
S	50KA	50%

TMD

In (A)	Poles	T3N 250 F F Icu = 36KA, Ics = 75%(Icu) Ordering Code	M.R.P.	T3S 250 F F Icu = 50KA, Ics = 50%(Icu) Ordering Code	M.R.P.
200	3	1SDA051246R1	17,200	1SDA051268R1	20,000
250	3	1SDA051247R1	19,800	1SDA051269R1	23,000
200	4	1SDA051305R1	22,000	1SDA051309R1	25,500
250	4	1SDA051306R1	25,000	1SDA051310R1	27,000

T4



Breaking Capacity at 415VAC

	Icu	Ics(Icu)
N	36KA	100%
S	50KA	100%
H	70KA	100%

T4 250 TMA

In	Poles	T4N 250 F F Icu = 36KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T4S 250 F F Icu = 50KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T4H 250 F F Icu = 70KA, Ics = 100%(Icu) Ordering Code	M.R.P.
80	3	1SDA054174R1	19,000	1SDA054192R1	22,000	1SDA054210R1	25,500
100	3	1SDA054175R1	19,000	1SDA054193R1	22,000	1SDA054211R1	25,500
125	3	1SDA054176R1	19,500	1SDA054194R1	22,500	1SDA054212R1	25,800
160	3	1SDA054177R1	19,500	1SDA054195R1	22,500	1SDA054213R1	25,800
200	3	1SDA054178R1	19,500	1SDA054196R1	22,500	1SDA054214R1	25,800
250	3	1SDA054179R1	22,000	1SDA054197R1	24,000	1SDA054215R1	27,000
80	4	1SDA054183R1	24,500	1SDA054201R1	28,000	1SDA054219R1	33,000
100	4	1SDA054184R1	24,500	1SDA054202R1	28,000	1SDA054220R1	33,000
125	4	1SDA054271R1	24,900	1SDA054275R1	28,500	1SDA054279R1	33,500
160	4	1SDA054272R1	24,900	1SDA054276R1	28,500	1SDA054280R1	33,500
200	4	1SDA054273R1	24,900	1SDA054277R1	28,500	1SDA054281R1	33,500
250	4	1SDA054274R1	26,000	1SDA054278R1	29,500	1SDA054282R1	34,500

PR221 DS-LS/I

250	3	1SDA053999R1	26,500	1SDA054023R1	33,000	1SDA054047R1	34,500
250	4	1SDA054011R1	34,500	1SDA054035R1	38,500	1SDA054059R1	40,000

PR222DS/P-LSIG

100	3	1SDA054006R1	38,000	1SDA054030R1	39,500	1SDA054054R1	48,000
160	3	1SDA054007R1	38,000	1SDA054031R1	39,500	1SDA054055R1	48,000
250	3	1SDA054008R1	38,000	1SDA054032R1	39,500	1SDA054056R1	48,000
100	4	1SDA054018R1	46,000	1SDA054042R1	48,500	1SDA054066R1	58,000
160	4	1SDA054019R1	46,000	1SDA054043R1	48,500	1SDA054067R1	58,000
250	4	1SDA054020R1	46,000	1SDA054044R1	48,500	1SDA054068R1	58,000

PR223DS

100	3	1SDA059489R1	Upon Req.	1SDA059497R1	Upon Req.	1SDA059505R1	Upon Req.
160	3	1SDA059491R1	Upon Req.	1SDA059499R1	Upon Req.	1SDA059507R1	Upon Req.
250	3	1SDA059493R1	Upon Req.	1SDA059501R1	Upon Req.	1SDA059509R1	Upon Req.
100	4	1SDA059490R1	Upon Req.	1SDA059498R1	Upon Req.	1SDA059506R1	Upon Req.
160	4	1SDA059492R1	Upon Req.	1SDA059500R1	Upon Req.	1SDA059508R1	Upon Req.
250	4	1SDA059494R1	Upon Req.	1SDA059502R1	Upon Req.	1SDA059510R1	Upon Req.

T4 320 PR221 DS-LS/I

In	Poles	T4N 320 F F Icu = 36KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T4S 320 F F Icu = 50KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T4H 320 F F Icu = 70KA, Ics = 100%(Icu) Ordering Code	M.R.P.
320	3	1SDA054117R1	30,500	1SDA054125R1	34,000	1SDA054133R1	39,500
320	4	1SDA054121R1	37,500	1SDA054129R1	43,000	1SDA054137R1	49,500

T4

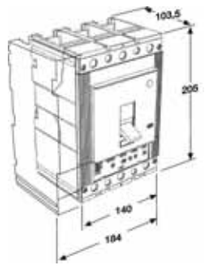
PR222DS/P-LSIG

		T4N 320 F F Icu = 36KA, Ics = 100%(Icu)		T4S 320 F F Icu = 50KA, Ics = 100%(Icu)		T4H 320 F F Icu = 70KA, Ics = 100%(Icu)	
320	3	1SDA054120R1	45,000	1SDA054128R1	46,000	1SDA054136R1	55,000
320	4	1SDA054124R1	50,000	1SDA054132R1	52,000	1SDA054140R1	62,000

PR223DS

320	3	1SDA059495R1	Upon Req.	1SDA059503R1	Upon Req.	1SDA059511R1	Upon Req.
320	4	1SDA059496R1	Upon Req.	1SDA059504R1	Upon Req.	1SDA059512R1	Upon Req.

T5



Breaking capacity at 415VAC

	Icu	Ics(Icu)
N	36KA	100%
S	50KA	100%
H	70KA	100%

T5 400 TMA

In	Poles	T5N 400 F F Icu = 36KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T5S 400 F F Icu = 50KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T5H 400 F F Icu = 70KA, Ics = 100%(Icu) Ordering Code	M.R.P.
320	3	1SDA054436R1	25,500	1SDA054440R1	26,500	1SDA054444R1	30,600
400	3	1SDA054437R1	25,500	1SDA054441R1	26,500	1SDA054445R1	30,600
320	4	1SDA054477R1	31,800	1SDA054479R1	33,000	1SDA054481R1	35,500
400	4	1SDA054478R1	31,800	1SDA054480R1	33,000	1SDA054482R1	35,500

PR221 DS-LS/I

400	3	1SDA054317R1	31,000	1SDA054333R1	34,000	1SDA054349R1	40,000
400	4	1SDA054325R1	38,500	1SDA054341R1	44,000	1SDA054357R1	50,000

PR222DS/P-LSIG

400	3	1SDA054323R1	47,000	1SDA054339R1	49,000	1SDA054355R1	58,000
400	4	1SDA054331R1	55,000	1SDA054347R1	55,000	1SDA054363R1	65,000

PR223DS

400	3	1SDA059531R1	Upon Req.	1SDA059537R1	Upon Req.	1SDA059543R1	Upon Req.
400	4	1SDA059532R1	Upon Req.	1SDA059538R1	Upon Req.	1SDA059544R1	Upon Req.

T5 630 TMA

In	Poles	T5N 630 F F Icu = 36KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T5S 630 F F Icu = 50KA, Ics = 100%(Icu) Ordering Code	M.R.P.	TT5H 630 F F Icu = 70KA, Ics = 100%(Icu) Ordering Code	M.R.P.
500	3	1SDA054456R1	28,500	1SDA054461R1	31,000	1SDA054465R1	39,500
500	4	1SDA054487R1	36,500	1SDA054489R1	40,000	1SDA054491R1	48,000

PR221 DS-LS/I

630	3	1SDA054396R1	33,000	1SDA054404R1	37,000	1SDA054412R1	42,500
630	4	1SDA054400R1	45,000	1SDA054408R1	49,000	1SDA054416R1	55,500

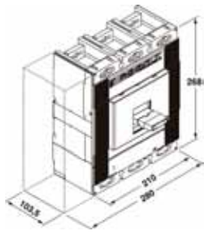
PR222DS/P-LSIG

		T5N 630 F F Icu = 36KA, Ics = 100%(Icu)		T5S 630 F F Icu = 50KA, Ics = 100%(Icu)		TT5H 630 F F Icu = 70KA, Ics = 100%(Icu)	
630	3	1SDA054399R1	50,000	1SDA054407R1	52,000	1SDA054415R1	60,000
630	4	1SDA054403R1	58,000	1SDA054411R1	64,000	1SDA054419R1	82,000

PR223DS

630	3	1SDA059533R1	Upon Req.	1SDA059539R1	Upon Req.	1SDA059545R1	Upon Req.
630	4	1SDA059534R1	Upon Req.	1SDA059540R1	Upon Req.	1SDA059546R1	Upon Req.

T6



Breaking Capacity at 415VAC

	Icu	Ics(Icu)
N	36KA	100%
S	50KA	100%
H	70KA	100%

T6 630 TMA

In	Poles	T6N 630 F F Icu = 36KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T6S 630 F F Icu = 50KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T6H 630 F F Icu = 70KA, Ics = 100%(Icu) Ordering Code	M.R.P.
630	3	1SDA060202R1	32,500	1SDA060204R1	33,500	1SDA060206R1	41,000
630	4	1SDA060210R1	39,000	1SDA060211R1	43,000	1SDA060212R1	51,000

T6 800 TMA

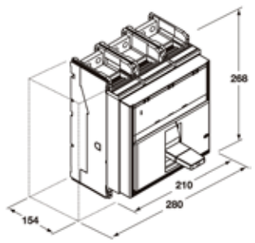
In	Poles	T6N 800 F F n Icu = 36KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T6S 800 F F n Icu = 50KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T6H 800 F F Icu = 70KA, Ics = 100%(Icu) Ordering Code	M.R.P.
800	3	1SDA060214R1	42,000	1SDA060216R1	44,000	1SDA060218R1	45,000
800	4	1SDA060222R1	47,500	1SDA060223R1	52,000	1SDA060224R1	54,000

PR221 DS-LS/I		T6N 800 F F n Icu = 36KA, Ics = 100%(Icu)		T6S 800 F F n Icu = 50KA, Ics = 100%(Icu)		T6H 800 F F Icu = 70KA, Ics = 100%(Icu)	
800	3	1SDA060268R1	49,500	1SDA060278R1	55,500	1SDA060289R1	65,000
800	4	1SDA060273R1	56,500	1SDA060283R1	69,000	1SDA060294R1	80,500
PR222DS/P-LSIG							
800	3	1SDA060271R1	73,500	1SDA060281R1	77,000	1SDA060292R1	82,000
800	4	1SDA060276R1	85,000	1SDA060286R1	87,000	1SDA060297R1	96,500
PR223DS							
800	3	1SDA060272R1	Upon Req.	1SDA060282R1	Upon Req.	1SDA060293R1	Upon Req.
800	4	1SDA060277R1	Upon Req.	1SDA060287R1	Upon Req.	1SDA060298R1	Upon Req.

T6 1000 PR221 DS-LS/I		T6N 1000 F F Icu = 36KA, Ics = 100%(Icu)		T6S 1000 F F Icu = 50KA, Ics = 100%(Icu)		T6H 1000 F F Icu = 70KA, Ics = 100%(Icu)	
In	Poles	Ordering Code	M.R.P.	Ordering Code	M.R.P.	Ordering Code	M.R.P.
1000	3	1SDA060537R1	76,000	1SDA060547R1	82,000	1SDA060561R1	98,000
1000	4	1SDA060542R1	1,10,000	1SDA060556R1	1,15,000	1SDA060566R1	1,40,000
PR222DS/P-LSIG							
1000	3	1SDA060540R1	1,00,000	1SDA060554R1	1,10,000	1SDA060564R1	1,35,000
1000	4	1SDA060545R1	1,33,000	1SDA060559R1	1,40,000	1SDA060569R1	1,70,000
PR223DS							
1000	3	1SDA060541R1	Upon Req.	1SDA060555R1	Upon Req.	1SDA060565R1	Upon Req.
1000	4	1SDA060546R1	Upon Req.	1SDA060560R1	Upon Req.	1SDA060573R1	Upon Req.

Note: Extended front terminals are supplied as standard in T6 1000A MCCB

T7



Breaking Capacity at 415VAC

	Icu	Ics(Icu)
S	50KA	100%
H	70KA	100%

T7 1250 PR231/P LS/I		T7S 1250 F F Icu = 50KA, Ics = 100%(Icu)		T7H 1250 F F Icu = 70KA, Ics = 100%(Icu)	
1250	3	1SDA062866R1	1,19,000	1SDA062898R1	1,56,500
1250	4	1SDA062874R1	1,49,500	1SDA062906R1	1,87,000
PR331/P LSIG					
1250	3	1SDA062868R1	1,53,000	1SDA062900R1	1,78,000
1250	4	1SDA062876R1	1,70,000	1SDA062908R1	2,10,000
PR332/P LI					
1250	3	1SDA062869R1	1,42,000	1SDA062901R1	1,74,500
1250	4	1SDA062877R1	1,65,500	1SDA062909R1	2,06,500

PR332/P LSIG		T7S 1250 F F Icu = 50KA, Ics = 100%(Icu)		T7H 1250 F F Icu = 70KA, Ics = 100%(Icu)	
1250	3	1SDA062871R1	1,59,000	1SDA062903R1	1,90,500
1250	4	1SDA062879R1	1,81,500	1SDA062911R1	2,21,000

T7 1600 PR231/P LS/I		T7S 1600 F F Icu = 50KA, Ics = 100%(Icu)		T7H 1600 F F Icu = 70KA, Ics = 100%(Icu)	
1600	3	1SDA062994R1	1,37,000	1SDA063026R1	1,72,000
1600	4	1SDA063002R1	1,64,500	1SDA063034R1	2,07,500
PR331/P LSIG					
1600	3	1SDA062996R1	1,59,000	1SDA063028R1	1,95,000
1600	4	1SDA063004R1	1,87,000	1SDA063036R1	2,27,000
PR332/P LI					
1600	3	1SDA062997R1	1,56,500	1SDA063029R1	1,90,500
1600	4	1SDA063005R1	1,81,500	1SDA063037R1	2,26,000
PR332/P LSIG					
1600	3	1SDA062999R1	1,72,500	1SDA063031R1	2,06,500
1600	4	1SDA063007R1	1,98,500	1SDA063039R1	2,43,000

T7 800M PR231/P LS/I		T7S 800M F F Icu = 50KA, Ics = 100%(Icu)		T7H 800M F F Icu = 70KA, Ics = 100%(Icu)	
800	3	1SDA061981R1	98,500	1SDA062658R1	1,05,500
800	4	1SDA061989R1	1,08,000	1SDA062666R1	1,23,500
PR232/P LSIG					
800	3	1SDA061983R1	1,08,000	1SDA062660R1	1,27,000
800	4	1SDA061991R1	1,21,500	1SDA062668R1	1,45,000
PR332/P LI					
800	3	1SDA061984R1	1,04,000	1SDA062661R1	1,21,000
800	4	1SDA061992R1	1,17,000	1SDA062669R1	1,40,500
PR332/P LSIG					
800	3	1SDA061986R1	1,19,000	1SDA062663R1	1,38,500
800	4	1SDA061994R1	1,32,500	1SDA062671R1	1,56,500

Note : For Motorizable T7 M frame, please order along with above code, motor operator, shunt opening coil & shunt closing coil of required voltage.

Tmax power distribution circuit breakers

T7

T7 1000M
PR231/P LS/I

		T7S 1000M F F Icu = 50KA, Ics = 100%(Icu)		T7H 1000M F F Icu = 70KA, Ics = 100%(Icu)	
1000	3	1SDA062754R1	1,07,500	1SDA062786R1	1,40,500
1000	4	1SDA062762R1	1,27,000	1SDA062794R1	1,68,000

PR331/P LSIG

1000	3	1SDA062756R1	1,30,500	1SDA062788R1	1,63,000
1000	4	1SDA062764R1	1,48,500	1SDA062796R1	1,90,500

PR332/P LI

1000	3	1SDA062757R1	1,31,500	1SDA062789R1	1,57,500
1000	4	1SDA062765R1	1,45,000	1SDA062797R1	1,85,000

PR332/P LSIG

1000	3	1SDA062759R1	1,40,500	1SDA062791R1	1,73,500
1000	4	1SDA062767R1	1,61,000	1SDA062799R1	2,02,000

Note : For Motorizable T7 M frame, please order along with above code, motor operator, shunt opening coil & shunt closing coil of required voltage.

T7 1250M
PR231/P LS/I

		T7S 1250M F F Icu = 50KA, Ics = 100%(Icu)		T7H 1250M F F Icu = 70KA, Ics = 100%(Icu)	
1250	3	1SDA062882R1	1,37,000	1SDA062914R1	1,73,500
1250	4	1SDA062889R1	1,64,500	1SDA062922R1	2,08,500

PR331/P LSIG

1250	3	1SDA062884R1	1,60,000	1SDA062916R1	1,97,500
1250	4	1SDA062892R1	1,86,000	1SDA062924R1	2,31,500

PR332/P LI

1250	3	1SDA062885R1	1,54,000	1SDA062917R1	1,93,000
1250	4	1SDA062893R1	1,81,500	1SDA062925R1	2,27,000

PR332/P LSIG

1250	3	1SDA062887R1	1,70,000	1SDA062919R1	2,07,500
1250	4	1SDA062895R1	1,97,500	1SDA062927R1	2,44,000

Note : For Motorizable T7 M frame, please order along with above code, motor operator, shunt opening coil & shunt closing coil of required voltage.

T7 1600M
PR231/P LS/I

		T7S 1600M F F Icu = 50KA, Ics = 100%(Icu)		T7H 1600M F F Icu = 70KA, Ics = 100%(Icu)	
1600	3	1SDA063010R1	1,52,000	1SDA063042R1	1,94,000
1600	4	1SDA063018R1	1,83,500	1SDA063050R1	2,32,000

PR331/P LSIG

1600	3	1SDA063012R1	1,74,500	1SDA063044R1	2,15,500
1600	4	1SDA063020R1	2,06,500	1SDA063052R1	2,55,000

PR332/P LI

1600	3	1SDA063013R1	1,70,000	1SDA063045R1	2,10,000
1600	4	1SDA063021R1	2,00,000	1SDA063053R1	2,52,000

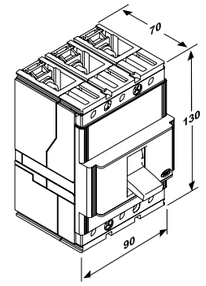
PR332/P LSIG

1600	3	1SDA063015R1	1,86,000	1SDA063047R1	2,27,000
1600	4	1SDA063023R1	2,16,500	1SDA063055R1	2,66,500

Note : For Motorizable T7 M frame, please order along with above code, motor operator, shunt opening coil & shunt closing coil of required voltage.

Tmax motor protection circuit breaker

T2



Breaking capacity at 415VAC

	Icu	Ics(Icu)
N	36KA	100%
S	50KA	100%
H	70KA	100%

T2 160
MF

In	Poles	T2N 160 F F Icu = 36KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T2S 160 F F Icu = 50KA, Ics = 100%(Icu) Ordering Code	M.R.P.	T2H 160 F F Icu = 70KA, Ics = 100%(Icu) Ordering Code	M.R.P.
1	3	1SDA053110R1	12,000	1SDA053121R1	13,000	1SDA053132R1	14,000
1.6	3	1SDA053111R1	12,000	1SDA053122R1	13,000	1SDA053133R1	14,000
2	3	1SDA053112R1	12,000	1SDA053123R1	13,000	1SDA053134R1	14,000
2.5	3	1SDA0531131R1	12,000	1SDA053124R1	13,000	1SDA053135R1	14,000
3.2	3	1SDA053114R1	12,000	1SDA053125R1	13,000	1SDA053136R1	14,000
4	3	1SDA053115R1	12,000	1SDA053126R1	13,000	1SDA053137R1	14,000
5	3	1SDA053116R1	12,000	1SDA053127R1	13,000	1SDA053138R1	14,000
6.5	3	1SDA053117R1	12,000	1SDA053128R1	13,000	1SDA053139R1	14,000
8.5	3	1SDA053118R1	12,000	1SDA053129R1	13,000	1SDA053140R1	14,000
11	3	1SDA053119R1	12,000	1SDA053130R1	13,000	1SDA053141R1	14,000
12.5	3	1SDA053120R1	12,000	1SDA053131R1	13,000	1SDA053142R1	14,000

MA

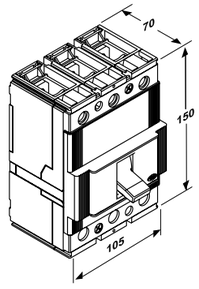
20	3	1SDA051207R1	12,000	1SDA051216R1	13,000	1SDA051224R1	14,000
32	3	1SDA051208R1	12,000	1SDA051217R1	13,000	1SDA051225R1	14,000
52	3	1SDA051209R1	12,000	1SDA051218R1	13,000	1SDA051226R1	14,000
80	3	1SDA051210R1	12,000	1SDA051219R1	13,000	1SDA051226R1	14,000
100	3	1SDA051211R1	12,000	1SDA051220R1	13,000	1SDA051228R1	14,000

PR221 DS-I

In	Poles	Ordering Code	M.R.P.	Ordering Code	M.R.P.	Ordering Code	M.R.P.
10	3	1SDA051163R1	15,800	1SDA051174R1	19,000	1SDA051184R1	20,000
25	3	1SDA051164R1	15,800	1SDA051175R1	19,000	1SDA051185R1	20,000
63	3	1SDA051165R1	15,800	1SDA051176R1	19,000	1SDA051186R1	20,000
100	3	1SDA051166R1	15,800	1SDA051177R1	19,000	1SDA051187R1	20,000
160	3	1SDA051168R1	19,600	1SDA051178R1	25,500	1SDA051188R1	27,000

Tmax motor protection circuit breaker

T3



Breaking capacity at 415VAC

	Icu	Ics(Icu)
N	36KA	75%
S	50KA	50%

T3 250
MA

In (A)	Poles
100	3
125	3
160	3
200	3

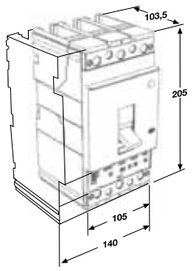
T3N 250 F F
Icu = 36KA, Ics = 75%(Icu)

Ordering Code	M.R.P.
1SDA051315R1	13,900
1SDA051316R1	14,000
1SDA051317R1	15,000
1SDA051318R1	16,000

T3S 250 F F
Icu = 50KA, Ics = 50%(Icu)

Ordering Code	M.R.P.
1SDA051320R1	14,500
1SDA051321R1	15,000
1SDA051322R1	15,500
1SDA051323R1	16,500

T4



Breaking capacity at 415VAC

	Icu	Ics(Icu)
N	36KA	100%
S	50KA	100%

T4 250
MA

In	Poles
125	3
160	3
200	3

T4N 250 F F
Icu = 36KA, Ics = 100%(Icu)

Ordering Code	M.R.P.
1SDA054298R1	22,500
1SDA054299R1	22,500
1SDA054300R1	22,500

T4S 250 F F
Icu = 50KA, Ics = 100%(Icu)

Ordering Code	M.R.P.
1SDA054304R1	25,000
1SDA054305R1	25,000
1SDA054306R1	25,000

PR221 DS-I

250	3
320	3

T4N 250 F F
Icu = 36KA, Ics = 100%(Icu)

1SDA054002R1	26,500
1SDA054118R1	30,500

T4S 250 F F
Icu = 50KA, Ics = 100%(Icu)

1SDA054026R1	33,000
1SDA054126R1	34,000

T4H 250 F F
Icu = 70KA, Ics = 100%(Icu)

1SDA054050R1	34,500
1SDA054134R1	39,500

PR222MP

100	3
160	3
200	3

T4N 250 F F
Icu = 36KA, Ics = 100%(Icu)

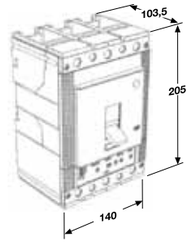
1SDA054522R1	36,000
1SDA054523R1	37,500
1SDA054524R1	38,500

T4S 250 F F
Icu = 50KA, Ics = 100%(Icu)

1SDA054525R1	48,000
1SDA054526R1	49,000
1SDA054527R1	50,000

Tmax motor protection circuit breaker

T5



Breaking capacity at 415VAC

	Icu	Ics(Icu)
N	36KA	100%
S	50KA	100%

T5 400
PR221 DS-I

400	3	1SDA054319R1	31,000	1SDA054335R1	34,000	1SDA054351R1	40,000

PR222MP

In	Poles
320	3
400	3

T5N 400 F F
Icu = 36KA, Ics = 100%(Icu)

Ordering Code	M.R.P.
1SDA054551R1	45,500
1SDA054552R1	45,500

T5S 400 F F
Icu = 50KA, Ics = 100%(Icu)

Ordering Code	M.R.P.
1SDA054553R1	51,000
1SDA054554R1	51,000

T5 630
PR221 DS-I

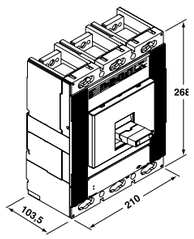
630	3	1SDA054397R1	33,000	1SDA054405R1	37,000	1SDA054413R1	42,500

T5N 630 F F
Icu = 36KA, Ics = 100%(Icu)

T5S 630 F F
Icu = 50KA, Ics = 100%(Icu)

TT5H 630 F F
Icu = 70KA, Ics = 100%(Icu)

T6



Breaking capacity at 415VAC

	Icu	Ics(Icu)
N	36KA	100%
S	50KA	100%
H	70KA	100%

T6 800
PR221 DS-I

800	3	1SDA060269R1	49,500	1SDA060279R1	55,500	1SDA060290R1	65,000

T6N 800 F F
Icu = 36KA, Ics = 100%(Icu)

T6S 800 F F
Icu = 50KA, Ics = 100%(Icu)

T6H 800 F F
Icu = 50KA, Ics = 100%(Icu)

PR222MP

In	Poles
800	3

Ordering Code	M.R.P.
1SDA060311R1	64,000

Ordering Code	M.R.P.
1SDA060312R1	70,000

Ordering Code	M.R.P.
1SDA060313R1	82,000

T6 1000
PR221 DS-I

1000	3	1SDA060538R1	76,000	1SDA060548R1	82,000	1SDA060562R1	95,000

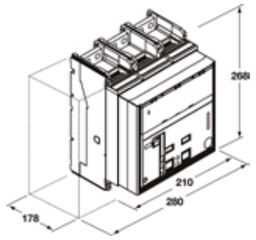
T6N 1000 F F
Icu = 36KA, Ics = 100%(Icu)

T6S 1000 F F
Icu = 50KA, Ics = 100%(Icu)

T6H 1000 F F
Icu = 50KA, Ics = 100%(Icu)

Tmax motor protection circuit breaker

T7



Breaking Capacity at 415VAC

	Icu	Ics
S	50KA	100%
H	70KA	100%

T7 1250
PR231/P I

In (A)	Poles
1250	3
1250	4

T7S 1250 F F
Icu = 50KA, Ics = 100%

Ordering Code	M.R.P.
1SDA062865R1	1,13,000
1SDA062873R1	1,47,000

T7H 1250 F F
Icu = 70KA, Ics = 100%

Ordering Code	M.R.P.
1SDA062897R1	1,55,500
1SDA062905R1	1,86,000

T7 1600
PR231/P I

In (A)	Poles
1600	3
1600	4

T7S 1600 F F
Icu = 50KA, Ics = 100%

Ordering Code	M.R.P.
1SDA062993R1	1,36,000
1SDA063001R1	1,63,000

T7H 1600 F F
Icu = 70KA, Ics = 100%

Ordering Code	M.R.P.
1SDA063025R1	1,71,500
1SDA063033R1	2,06,500

T7 800M
PR231/P I

In (A)	Poles
800	3
800	4

T7S 800M F F
Icu = 50KA, Ics = 100%

Ordering Code	M.R.P.
1SDA061980R1	85,000
1SDA061988R1	97,500

T7H 800M F F
Icu = 70KA, Ics = 100%

Ordering Code	M.R.P.
1SDA062657R1	1,04,000
1SDA062665R1	1,22,500

T7 1000M
PR231/P I

In (A)	Poles
1000	3
1000	4

T7S 1000M F F
Icu = 50KA, Ics = 100%

Ordering Code	M.R.P.
1SDA062753R1	1,06,500
1SDA062761R1	1,24,500

T7H 1000M F F
Icu = 70KA, Ics = 100%

Ordering Code	M.R.P.
1SDA062785R1	1,39,500
1SDA062793R1	1,66,500

T7 1250M
PR231/P I

In (A)	Poles
1250	3
1250	4

T7S 1250M F F
Icu = 50KA, Ics = 100%

Ordering Code	M.R.P.
1SDA062881R1	1,27,000
1SDA062889R1	1,62,000

T7H 1250M F F
Icu = 70KA, Ics = 100%

Ordering Code	M.R.P.
1SDA062913R1	1,72,500
1SDA062921R1	2,07,500

T7 1600M
PR231/P I

In (A)	Poles
1600	3
1600	4

T7S 1600M F F
Icu = 50KA, Ics = 100%

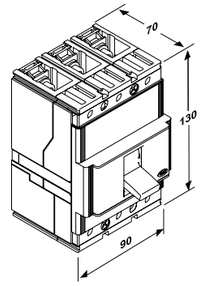
Ordering Code	M.R.P.
1SDA063009R1	1,51,000
1SDA063017R1	1,81,500

T7H 1600M F F
Icu = 70KA, Ics = 100%

Ordering Code	M.R.P.
1SDA063041R1	1,93,000
1SDA063049R1	2,31,500

Tmax generator protection circuit breakers

T2



Breaking Capacity at 415VAC

	Icu	Ics
N	36KA	100%
S	50KA	100%

T2 160
TMG

In	Poles
25	3
40	3
63	3
80	3
100	3
125	3
160	3
25	4
40	4
63	4
80	4
100	4
125	4
160	4

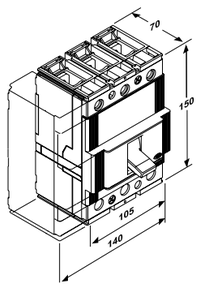
T2N 160 F F
Icu = 36KA, Ics = 100%

Ordering Code	M.R.P.
1SDA061867R1	9,000
1SDA061868R1	9,000
1SDA061869R1	9,000
1SDA061870R1	9,000
1SDA061871R1	9,000
1SDA061872R1	10,200
1SDA061873R1	13,700
1SDA061875R1	11,500
1SDA061876R1	11,500
1SDA061877R1	11,500
1SDA061878R1	11,500
1SDA061879R1	11,500
1SDA061880R1	13,000
1SDA061881R1	16,000

T2S 160 F F
Icu = 50KA, Ics = 100%

Ordering Code	M.R.P.
1SDA061883R1	11,000
1SDA061884R1	11,000
1SDA061885R1	11,000
1SDA061886R1	11,000
1SDA061887R1	11,000
1SDA061888R1	14,000
1SDA061889R1	17,500
1SDA061891R1	14,200
1SDA061892R1	14,200
1SDA061893R1	14,200
1SDA061894R1	14,200
1SDA061895R1	14,200
1SDA061896R1	18,000
1SDA061897R1	21,000

T3



Breaking Capacity at 415VAC

	Icu	Ics
N	36KA	75%
S	50KA	50%

T3 250
TMG

200	3
250	3
200	4
250	4

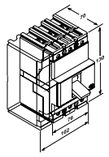
T3N 250 F F
Icu = 36KA, Ics = 75%

1SDA055110R1	17,200
1SDA055111R1	19,800
1SDA055117R1	22,000
1SDA055118R1	25,000

T3S 250 F F
Icu = 50KA, Ics = 50%

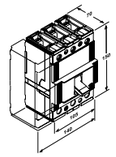
1SDA055124R1	20,000
1SDA055125R1	23,000
1SDA055131R1	25,500
1SDA055132R1	27,000

Tmax switch disconnector



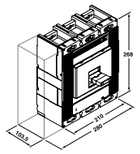
T1

Iu (40°C) 160 A
Ue (AC 50-60 Hz) 690 V
Ue (DC) 500 V



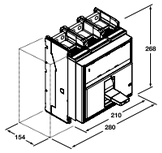
T3

Iu (40°C) 250 A
Ue (AC 50-60 Hz) 690 V
Ue (DC) 500 V



T6

Iu (40°C) 630-800-1000 A
Ue (AC 50-60 Hz) 690 V
Ue (DC) 750 V



T7

Iu (40°C) 1000-1250-1600 A
Ue (AC 50-60 Hz) 690 V
Ue (DC) 750 V

T1D - Fixed (F) Iu (40°C), Icw (1s) = 2,2 kA

T1D 160 F FC Cu

Poles	In(A)	Ordering Code	M.R.P.
3	250	1SDA051325R1	6,500
4	250	1SDA051326R1	9,500

T3D - Fixed (F) Iu (40°C), Icw (1s) = 3.6 kA

T3D 250 F F

Poles	In(A)	Ordering Code	M.R.P.
3	250	1SDA051327R1	15,500
4	250	1SDA051328R1	18,500

T4D- Fixed (F) Iu (40°C) ,Icw (1s) = 3,6 kA

	T4D 250 F F			T4D 320 F F		
Poles	In(A)	Ordering Code	M.R.P.	In(A)	Ordering Code	M.R.P.
3	250	1SDA057172R1	17,000	320	1SDA054597R1	19,000
4	250	1SDA057173R1	22,600	320	1SDA054598R1	25,000

T5D- Fixed (F) Iu (40°C) ,Icw (1s) = 3,6 kA

				T5D 500 F F		
Poles	In(A)	Ordering Code	M.R.P.	In(A)	Ordering Code	M.R.P.
3	400	1SDA054599R1	20,500	500	1SDA054601R1	25,000
4	400	1SDA054600R1	26,000	500	1SDA054602R1	31,800

T6D - Fixed (F) Iu (40°C) ,Icw (1s) = 15 kA

	T6D 630 F F			T6D 800 F F			T6D 1000 F F		
Poles	In(A)	Ordering Code	M.R.P.	In(A)	Ordering Code	M.R.P.	In(A)	Ordering Code	M.R.P.
3	630	1SDA060343R1	28,300	800	1SDA060345R1	31,200	1000	1SDA060594R1	54,400
4	630	1SDA060344R1	34,000	800	1SDA060346R1	51,000	1000	1SDA060595R1	68,000

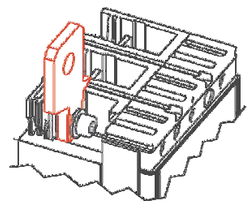
T7D- Fixed (F) Iu (40°C), Icw (1s) = 25 kA

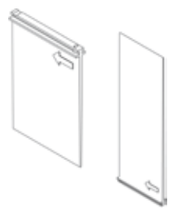
	T7D 1000 F F			T7D 1250 F F			T7D 1600 F F		
Poles	In(A)	Ordering Code	M.R.P.	In(A)	Ordering Code	M.R.P.	In(A)	Ordering Code	M.R.P.
3	1000	1SDA062032R1	62,400	1250	1SDA062036R1	85,000	1600	1SDA062040R1	88,500
4	1000	1SDA062033R1	79,500	1250	1SDA062037R1	1,04,500	1600	1SDA062041R1	1,09,000

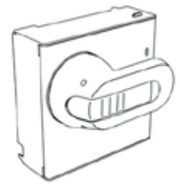
T7D M - Fixed (F) Iu (40°C), Icw (1s) = 25 kA

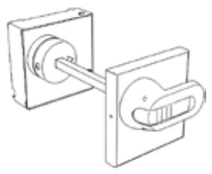
	T7D 1000 M F F			T7D 1250 M F F			T7D 1600 M F F		
Poles	In(A)	Ordering Code	M.R.P.	In(A)	Ordering Code	M.R.P.	In(A)	Ordering Code	M.R.P.
3	1000	1SDA062034R1	77,000	1250	1SDA062038R1	88,500	1600	1SDA062042R1	97,500
4	1000	1SDA062035R1	97,500	1250	1SDA062039R1	1,09,000	1600	1SDA062043R1	1,21,500

Tmax accessories









Accessories for T-Max MCCBs

Extended Spreaded terminals - ES		
Description	**Ordering code**	**M.R.P.**
Kit EST1 6pcs	1SYN450201R0001	700
Kit EST1 8pcs	1SYN450207R0001	800
Kit EST2 6pcs	1SYN450202R0001	1,100
Kit EST2 8pcs	1SYN450208R0001	1,300
Kit EST3 6pcs	1SYN450203R0001	1,200
Kit EST3 8pcs	1SYN450209R0001	1,500
Kit EST4 6pcs	1SYN450204R0001	1,500
Kit EST4 8pcs	1SYN450210R0001	1,800
Kit EST5 6pcs (for 400A)	1SYN450205R0001	2,000
Kit EST5 8pcs (for 400A)	1SYN450211R0001	2,500
Kit EST5 6pcs (for 630A)	1SYN450206R0001	2,000
Kit EST5 8pcs (for 630A)	1SYN450212R0001	2,500

Note: Phase barrier supplied as standard with above spreaders

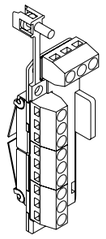
Seperators - PB		
Description	**Ordering code**	**M.R.P.**
PB100 4 pcs - Low T1	1SYN850205R0001	550
PB100 6 pcs - Low T1	1SYN850208R0001	650
PB100 4 pcs - Low T2-T3	1SYN850206R0001	650
PB100 6 pcs - Low T2-T3	1SYN850209R0001	900
PB100 4 pcs - Low T4, T5	1SYN850207R0001	750
PB100 6 pcs - Low T4, T5 - 400A	1SYN850210R0001	1,100

Note: For T5 630A please contact the nearest sales office

Rotary handle operating mechanism

Direct - RHD		
Description	**Ordering code**	**M.R.P.**
RHD Normal T1-T2-T3	1SDA051381R1	1,400
RHD_EM EmergencyT1-T2-T3	1SDA051382R1	1,700
RHD Normal for Fixed/Plug-in T4-T5	1SDA054926R1	2,800
RHD_EM Emergency for Fixed/Plug-in T4-T5	1SDA054927R1	3,100
RHD Normal for Withdrawble T4-T5	1SDA054928R1	3,200
RHD_EM Emergency for Withdrawble T4-T5	1SDA055234R1	3,200
RHD Normal for Fixed T6	1SDA060405R1	4,000
RHD Normal for Withdrawble T6	1SDA060407R1	5,000
RHD_EM Emergency for Fixed T6	1SDA060406R1	5,000
RHD_EM Emergency for Withdrawble T6	1SDA060408R1	5,000
RHD Normal for Fixed/Plug-in T7	1SDA062120R1	5,200
RHD_EM Emergency for Fixed/Withdrawble T7	1SDA062121R1	5,200

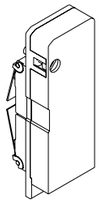
Transmitted - RHE		
Description	**Ordering code**	**M.R.P.**
RHE_S T1-T2-T3 250MM	1SDA070207R1	1,500
RHE_EM Emergency T1-T2-T3	1SDA051384R1	3,000
RHE Normal for Fixed/Plug-in T4-T5 250mm	1SDA070447R1	2,600
RHE_EM Emergency for Fixed/Plug-in T4-T5	1SDA054930R1	5,200
RHE Normal for Withdrawble T4-T5	1SDA054933R1	4,700
RHE_EM Emergency for Withdrawble T4-T5	1SDA054934R1	4,700
RHE Normal for Fixed T6	1SDA060409R1	5,200
RHE Normal for Withdrawble T6	1SDA060411R1	6,000
RHE_EM Emergency for Fixed T6	1SDA060410R1	6,000
RHE_EM Emergency for Withdrawble T6	1SDA060412R1	6,000
RHE Normal for Fixed/Plug-in T7	1SDA062122R1	6,300
RHE_EM Emergency for Fixed/Withdrawble T7	1SDA062123R1	7,500



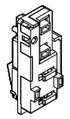
Electrical Signals

Auxillary Contact - AUX		
Description	**Ordering code**	**M.R.P.**
AUX 1Q 1SY 250V AC/DC T1...T6 (1)	1SDA051368R1	1,300
AUX 3Q 1SY 250V AC/DC T1...T6 (1)	1SDA051369R1	2,100
AUX 3Q 1SY 24V DC T1...T6 (1)	1SDA054914R1	2,100
AUX-SA 1 S51 T4-T5	1SDA055050R1	1,300
AUX 2Q 24V DC T7M-X1	1SDA062101R1	1,300
AUX 2Q 400V AC T7M-X1	1SDA062102R1	1,300
AUX 1Q + 1SY 24V DC T7	1SDA062103R1	2,100
AUX 1Q + 1SY 400V AC T7	1SDA062104R1	2,100

Note (1): Cannot be used with T2 MCCB fitted with PR221DS trip unit
Note: For T7 TM in Withdrable Version Sliding Contact Blocks for Fixed and moving Part are Necessary

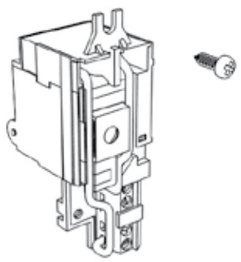


Auxilary Contact Cabled-Version - AUX - C		
Description	**Ordering code**	**M.R.P.**
AUX-C 1Q 1SY 250 V AC/DC T1-T2-T3 (1)	1SDA051370R1	1,900
AUX-C 3Q 1SY 250 V AC/DC T1-T2-T3 (1)	1SDA051371R1	3,300
AUX-C 3Q 1SY T1-T2-T3 (1)	1SDA055361R1	2,800
AUX-C 1Q 1SY 1S51 - PR221 T2	1SDA053704R1	2,200
AUX-C 2Q 1SY - PR221 T2	1SDA055504R1	2,500
AUX-C 1Q 1SY 250V AC/DC C T4-T5-T6	1SDA054910R1	1,900
AUX-C 1Q 1SY 400V AC C T4-T5-T6	1SDA054912R1	2,600
AUX-C 2Q 400V AC C T4-T5-T6	1SDA054913R1	3,000
AUX-C 3Q 1SY 24VDC C T4-T5-T6	1SDA054915R1	2,800
AUX-C 3Q 1SY 250V AC/DC C T4-T5-T6	1SDA054911R1	3,300



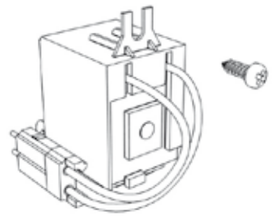
Cabled Contact in Electronic Version		
Description	**Ordering code**	**M.R.P.**
A UX-E-C 1Q 1SY T4-T5	1SDA054916R1	4,300
AUX-E-C 1Q 1SY T6	1SDA064161R1	5,000

Opening Release



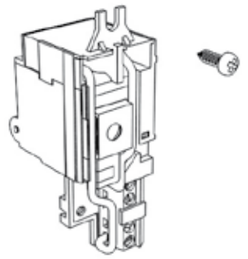
Shunt Opening Release - SOR		
Description	**Ordering code**	**M.R.P.**
SOR 12V DC T1-T2-T3	1SDA053000R1	1,750
SOR 24...30V AC/DC T1-T2-T3	1SDA051333R1	1,750
SOR 48…60V AC/DC T1-T2-T3	1SDA051334R1	1,750
SOR 110…127V AC-110…125V DC T1-T2-T3	1SDA051335R1	1,750
SOR 220…240V AC-220…250V DC T1-T2-T3	1SDA051336R1	1,750
SOR 380…440V AC T1-T2-T3	1SDA051337R1	1,750
SOR 480…525V AC T1-T2-T3	1SDA051338R1	1,750
SOR 12V DC T4-T5-T6	1SDA054862R1	2,700
SOR 24V AC/DC T4-T5-T6	1SDA054863R1	2,700
SOR 48...60V AC/DC T4-T5-T6	1SDA054864R1	2,700
SOR 110...120V AC-110...125V DC T4-T5-T6	1SDA054865R1	2,700
SOR 220...240V AC-220...250V DC T4-T5-T6	1SDA054866R1	2,700
SOR 380...440V AC T4-T5-T6	1SDA054867R1	2,700
SOR 480...500V AC T4-T5-T6	1SDA054868R1	2,700
SOR 24V AC/DC T7-T7M-X1	1SDA062065R1	5,300
SOR 30V AC/DC T7-T7M-X1	1SDA062066R1	5,300
SOR 48V AC/DC T7-T7M-X1	1SDA062067R1	5,300
SOR 60V AC/DC T7-T7M-X1	1SDA062068R1	5,300
SOR 110...120V AC/DC T7-T7M-X1	1SDA062069R1	5,300
SOR 120...127V AC/DC T7-T7M-X1	1SDA063547R1	5,300
SOR 220...240V AC/DC T7-T7M-X1	1SDA063548R1	5,300
SOR 240...250V AC/DC T7-T7M-X1	1SDA062070R1	5,300
SOR 380...400V AC T7-T7M-X1	1SDA062071R1	5,300
SOR 415...440V AC T7-T7M-X1	1SDA062072R1	5,300

Note (1): Cannot be used with T2 MCCB fitted with PR221DS trip unit
Note: For T7 TM in Withdrable Version Sliding Contact Blocks for Fixed and Moving Part are Necessary



Shunt Opening Release - SOR		
Description	**Ordering code**	**M.R.P.**
SOR-C 12V DC T1-T2-T3	1SDA053001R1	2,700
SOR-C 24 ...30V AC/DC T1-T2-T3	1SDA051339R1	2,700
SOR-C 48…60V AC/DC T1-T2-T3	1SDA051340R1	2,700
SOR-C 110…127V AC-110…125V DC T1-T2-T3	1SDA051341R1	2,700
SOR-C 220…240V AC-220…250V DC T1-T2-T3	1SDA051342R1	2,700
SOR-C 380…440V AC T1-T2-T3	1SDA051343R1	2,700
SOR-C 480…525V AC T1-T2-T3	1SDA051344R1	2,700
SOR-C 12V DC T4-T5-T6	1SDA054869R1	4,600
SOR-C 24V AC/DC T4-T5-T6	1SDA054870R1	4,600
SOR-C 48...60V AC/DC T4-T5-T6	1SDA054871R1	4,600
SOR-C 110...120V AC-110...125V DC T4-T5-T6	1SDA054872R1	4,600
SOR-C 220...240V AC-220...250V DC T4-T5-T6	1SDA054873R1	4,600
SOR 380...440V AC T4-T5-T6	1SDA054867R1	4,600
SOR 480...500V AC T4-T5-T6	1SDA054868R1	4,600
SOR 24V AC/DC T7-T7M-X1	1SDA062065R1	5,300

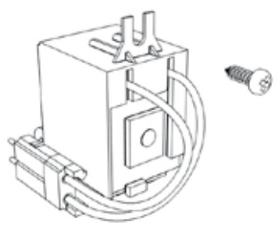
Test unit- SOR



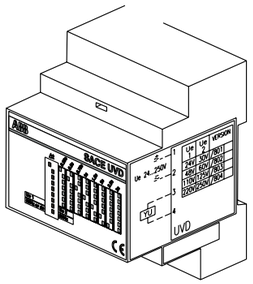
Description	Ordering code	M.R.P.
SOR test unit T7-T7M-X1-E1/6	1SDA050228R1	24,000

Under Voltage Release - UVR		
Description	**Ordering code**	**M.R.P.**
UVR 24…30V AC/DC T1-T2-T3	1SDA051345R1	3,500
UVR 48V AC/DC T1-T2-T3	1SDA051346R1	3,500
UVR 60V AC/DC T1-T2-T3	1SDA052333R1	3,500
UVR 110…127V AC-110…125V DC T1-T2-T3	1SDA051347R1	3,500
UVR 220…240V AC-220…250V DC T1-T2-T3	1SDA051348R1	3,500
UVR 380…440V AC T1-T2-T3	1SDA051349R1	3,500
UVR 480…500V AC T1-T2-T3	1SDA051350R1	3,500
UVR 24V AC/DC T4-T5-T6	1SDA054880R1	5,700
UVR 48V AC/DC T4-T5-T6	1SDA054881R1	5,700
UVR 60V AC/DC T4-T5-T6	1SDA054882R1	5,700
UVR 110...120V AC-110...125V DC T4-T5-T6	1SDA054883R1	5,700
UVR 220...240V AC-220...250V DC T4-T5-T6	1SDA054884R1	5,700
UVR 380...440V AC T4-T5-T6	1SDA054885R1	5,700
UVR 480...500V AC T4-T5-T6	1SDA054886R1	5,700
UVR 24V AC/DC T7-T7M-X1	1SDA062087R1	6,800
UVR 30V AC/DC T7-T7M-X1	1SDA062088R1	6,800
UVR 48V AC/DC T7-T7M-X1	1SDA062089R1	6,800
UVR 60V AC/DC T7-T7M-X1	1SDA062090R1	6,800
UVR 110...120V AC/DC T7-T7M-X1	1SDA062091R1	6,800
UVR 120...127V AC/DC T7-T7M-X1	1SDA063551R1	6,800
UVR 220...240V AC/DC T7-T7M-X1	1SDA063552R1	6,800
UVR 240...250V AC/DC T7-T7M-X1	1SDA062092R1	6,800
UVR 380...400V AC T7-T7M-X1	1SDA062093R1	6,800
UVR 415...440V AC T7-T7M-X1	1SDA062094R1	6,800

Note: For T7 TM in Withdrable version sliding contact blocks for Fixed and Moving part are necessary

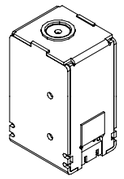


Under Voltage Release C - UVR - C		
Description	**Ordering code**	**M.R.P.**
UVR-C 24…30 V AC/DC T1-T2-T3	1SDA051351R1	6,800
UVR-C 48V AC/DC T1-T2-T3	1SDA051352R1	6,800
UVR-C 110…127V AC-110…125VDC T1-T2-T3	1SDA051353R1	6,800
UVR-C 220…240V AC-220…250VDC T1-T2-T3	1SDA051354R1	6,800
UVR-C 380…440V AC T1-T2-T3	1SDA051355R1	6,800
UVR-C 480…500V AC T1-T2-T3	1SDA051356R1	6,800
UVR-C 60V AC/DC T1-T2-T3	1SDA052335R1	6,800
UVR-C 24V AC/DC T4-T5-T6	1SDA054887R1	7,400
UVR-C 48V AC/DC T4-T5-T6	1SDA054888R1	7,400



Time Delay Device for Under Voltage Release- UVD		
Description	**Ordering code**	**M.R.P.**
UVD 24...30V AC/DC T1...T6	1SDA051357R1	30,500
UVD 48...60V AC/DC T1...T6	1SDA051358R1	30,500
UVD 110...125V AC/DC T1...T6	1SDA051360R1	30,500
UVD 220...250V AC/DC T1...T6	1SDA051361R1	30,500
UVD 24/30V AC/DC E1/6 - T7-T7M-X1	1SDA038316R1	10,000
UVD 48V AC/DC E1/6 - T7-T7M-X1	1SDA038317R1	10,000
UVD 60V AC/DC E1/6 - T7-T7M-X1	1SDA038318R1	10,000
UVD 110…125V AC/DC E1/6 - T7-T7M-X1	1SDA038319R1	10,000
UVD 220…250V AC/DC E1/6 - T7-T7M-X1	1SDA038320R1	10,000

Note: Order along with relative UV release

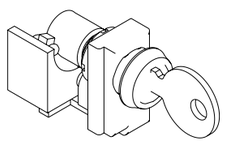


Shunt Closing Release

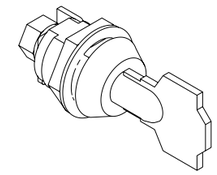
Description	Ordering code	M.R.P.
SCR 24V AC/DC T7M-X1	1SDA062076R1	6,500
SCR 30V AC/DC T7M-X1	1SDA062077R1	6,500
SCR 48V AC/DC T7M-X1	1SDA062078R1	6,500
SCR 60V AC/DC T7M-X1	1SDA062079R1	6,500
SCR 110...120V AC/DC T7M-X1	1SDA062080R1	6,500
SCR 120...127V AC/DC T7M-X1	1SDA063549R1	6,500
SCR 220...240V AC/DC T7M-X1	1SDA063550R1	6,500
SCR 240...250V AC/DC T7M-X1	1SDA062081R1	6,500
SCR 380...400V AC T7M-X1	1SDA062082R1	6,500
SCR 415...440V AC T7M-X1	1SDA062083R1	6,500

Note: For T7 M in withdrawable version sliding blocks for fixed and moving part are necessary

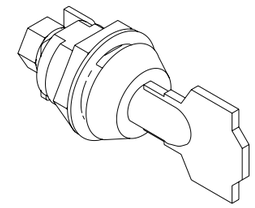
Key lock



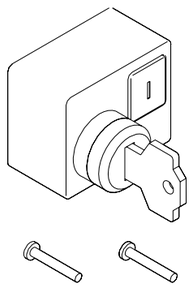
Key Lock - KLC		
Description	**Ordering code**	**M.R.P.**
KLC for Manual Breaker		
KLC Ronis Same Key T1	1SDA051395R1	1,600
KLC Ronis Same Key T2	1SDA052015R1	1,600
KLC Ronis Same Key T3	1SDA052016R1	1,600
KLC Same Key T1	1SDA053528R1	1,600
KLC Same Key T2	1SDA053529R1	1,600
KLC Same Key T3	1SDA053530R1	1,600
KLC-D Key Lock - Different Key in Open Position T7	1SDA062134R1	2,400
KLC-S Same Key for Different Groups of Circuit		
Breakers (N. 20005) T7	1SDA062135R1	2,400
KLC-S Same Key for Different Groups of Circuit		
Breakers (N. 20006) T7	1SDA062136R1	2,400
KLC-S Same Key for Different Groups of Circuit		
Breakers (N. 20007) T7	1SDA062137R1	2,400
KLC-S Same Key for Different Groups of Circuit		
Breakers (N. 20008) T7	1SDA062138R1	2,400
KLC Arrangment for Ronis Key Lock T7	1SDA062139R1	2,800
KLC Arrangment for Profalux Key Lock T7	1SDA062140R1	2,800
KLC for Circuit Breaker with Motor Operator		
KLC-D Different Key in open Position T7M	1SDA062141R1	2,600
KLC-S Same Key for Different Groups of Circuit		
Breakers (N. 20005) T7M	1SDA062142R1	2,600
KLC-S Same Key for Different Groups of Circuit		
Breakers (N. 20006) T7M	1SDA062143R1	2,600
KLC-S Same Key for Different Groups of Circuit		
Breakers (N. 20007) T7M	1SDA062144R1	2,600
KLC-S Same Key for Different Groups of Circuit		
Breakers (N. 20008) T7M	1SDA062145R1	2,600
KLC Same Key Ronis-Profalux T7M	1SDA062146R1	2,600



Key Lock for Rotary Handle - RHL		
Description	**Ordering code**	**M.R.P.**
RHL Different keys in open position for rotary handleT1-T2-T3	1SDA051389R1	800
RHL Same Keys in open position for rotary handleT1-T2-T3	1SDA051390R1	800
RHL Different keys in open /closed position for rotary handle T1-T2-T3	1SDA052021R1	800
RHL Same Keys in open position for rotary handleT1-T2-T3	1SDA060147R1	800
RHL Same Keys in open position for rotary handleT1-T2-T3	1SDA060148R1	800
RHL Same Keys in open position for rotary handleT1-T2-T3	1SDA060149R1	800



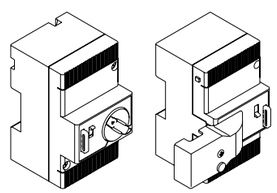
Key Lock for Front / Rotary / Fixed Part- KLF		
Description	**Ordering code**	**M.R.P.**
KLF-D Lock for Front / Rotary Handle - Different Key in open PositionT4-T5	1SDA054939R1	2,500
KLF-S Block for Front / Rotary Handle - Same Key (N. 20005) T4-T5	1SDA054940R1	2,500
KLF-S Block for Front / Rotary Handle - Same Key (N. 20006) T4-T5	1SDA054941R1	2,500
KLF-S Block for Front / Rotary Handle - Same Key (N. 20007) T4-T5	1SDA054942R1	2,500
KLF-S Block for Front / Rotary Handle - Same Key (N. 20008) T4-T5	1SDA054943R1	2,500
KLF-D FP Different Key for Each Circuit Breaker T4-T5-T6	1SDA055230R1	2,500
KLF-D FP Same Key for Different Groups of Circuit Breaker T4-T5-T6	1SDA055231R1	2,500
KLF-D Ronis Fixed Part- Lock Type Ronis T4-T5-T6	1SDA055233R1	2,500
KLF-D Different Key in open Position T6	1SDA060658R1	2,500
KLF-S Same Key for Different Groups of Circuit Breakers (N. 20005) T6	1SDA060659R1	2,500
KLF-S Same Key for Different Groups of Circuit Breakers (N. 20006) T6	1SDA060660R1	2,500
KLF-S Same Key for Different Groups of Circuit Breakers (N. 20007) T6	1SDA060661R1	2,500
KLF-S Same Key for Different Groups of Circuit Breakers (N. 20008) T6	1SDA060662R1	2,500
KLF-D Different Key in open Position T7	1SDA063555R1	2,500
KLF-S Same Key for Different Groups of Circuit Breakers (N. 20005) T7	1SDA063556R1	2,500
KLF-S Same Key for Different Groups of Circuit Breakers (N. 20006) T7	1SDA063557R1	2,500
KLF-S Same Key for Different Groups of Circuit Breakers (N. 20007) T7	1SDA063558R1	2,500
KLF-S Same Key for Different Groups of Circuit Breakers (N. 20008) T7	1SDA063559R1	2,500
KLF Arrangment for ronis key lock T7	1SDA063560R1	2,500
KLF Arrangment for profalux key lock T7	1SDA063561R1	2,500



Key lock for motor operated- MOL

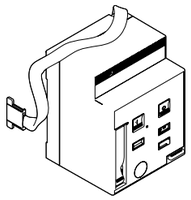
Description	Ordering code	M.R.P.
MOL-D - Same Key T4-T5	1SDA054904R1	2,600
MOL-S - Same Key for Different Groups of Circuit Breakers (N. 20005) T4-T5	1SDA054905R1	2,600
MOL-S - Same Key for Different Groups of Circuit Breakers (N. 20006) T4-T5	1SDA054906R1	2,600
MOL-S - Same Key for Different Groups of Circuit Breakers (N. 20007) T4-T5	1SDA054907R1	2,600
MOL-S - Same Key for Different Groups of Circuit Breakers (N. 20008) T4-T5	1SDA054908R1	2,600
MOL-M - Lock only on manual operation - Same Key T4-T5-T6	1SDA054909R1	2,600
MOL-D - Different key T6	1SDA060611R1	2,600
MOL-S - Same Key for Different Groups of Circuit Breakers (N. 20005) T6	1SDA060612R1	2,600
MOL-S - Same Key for Different Groups of Circuit Breakers (N. 20006) T6	1SDA060613R1	2,600
MOL-S - Same Key for Different Groups of Circuit Breakers (N. 20007) T6	1SDA060614R1	2,600
MOL-S - Same Key for Different Groups of Circuit Breakers (N. 20008) T6	1SDA060615R1	2,600

Motor operated



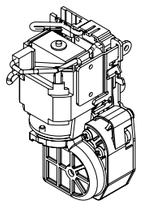
Solenooide Operater - MOS		
Description	**Ordering code**	**M.R.P.**
MOS Superinposed 48…60V DC T1-T2-T3	1SDA059596R1	16,500
MOS Superinposed 110…250V AC-110…250V DC T1-T2-T3	1SDA059597R1	16,500
MOS Side-by-side 48…60V DC T1-T2	1SDA059598R1	20,000
MOS Side-by-side 110…250V AC-110…250V DC T1-T2	1SDA059599R1	20,000

Note: It is always Fitted with Socket - Plug Connector



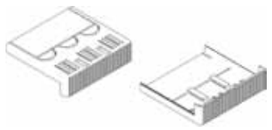
Stored Energy Motor Operator - MOE		
Description	**Ordering code**	**M.R.P.**
MOE 24 V DC T4-T5	1SDA054894R1	27,000
MOE 48...60 V DC T4-T5	1SDA054895R1	27,000
MOE 110...125 V AC / DC T4-T5	1SDA054896R1	27,000
MOE 220...250 V AC / DC T4-T5	1SDA054897R1	27,000
MOE 380 V AC T4-T5	1SDA054898R1	27,000
MOE 24 V DC T6	1SDA060395R1	31,000
MOE 48…60 V DC T6	1SDA060396R1	31,000
MOE 110…125 V AC/DC T6	1SDA060397R1	31,000
MOE 220…250 V AC/DC T6	1SDA060398R1	31,000
MOE 380 V AC T6	1SDA060399R1	31,000

Stored Energy Motor Operator with Electronics - MOE-E		
Description	**Ordering code**	**M.R.P.**
MOE-E 24 V DC T4-T5	1SDA054899R1	41,300
MOE-E 48...60 V DC T4-T5	1SDA054900R1	41,300
MOE-E 110...125 V AC / DC T4-T5	1SDA054901R1	41,300
MOE-E 220...250 V AC / DC T4-T5	1SDA054902R1	41,300
MOE-E 380 V AC T4-T5	1SDA054903R1	41,300
MOE-E 24 V DC T6	1SDA060400R1	50,000
MOE-E 48…60 V DC T6	1SDA060401R1	50,000
MOE-E 110…125 V AC/DC T6	1SDA060402R1	50,000
MOE-E 220…250 V AC/DC T6	1SDA060403R1	50,000
MOE-E 380 V AC T6	1SDA060404R1	50,000



Spring Charging Motor- M		
Description	**Ordering code**	**M.R.P.**
M 24...30V AC/DC T7M-X1	1SDA062113R1	34,000
M 48...60V AC/DC T7M-X1	1SDA062114R1	34,000
M 100...130V AC/DC T7M-X1	1SDA062115R1	34,000
M 220...250V AC/DC T7M-X1	1SDA062116R1	34,000
M 380...415V AC T7M-X1	1SDA062117R1	34,000

Low insulating terminal covers - LTC



Description	Ordering code	M.R.P.
LTC 3p T1	1SDA051421R1	1,500
LTC 4p T1	1SDA051422R1	1,800
LTC 3p T2	1SDA051423R1	1,500
LTC 4p T2	1SDA051424R1	1,800
LTC 3p T3	1SDA051425R1	1,600
LTC 4p T3	1SDA051426R1	2,000
LTC 3p T4	1SDA054966R1	1,800
LTC 4p T4	1SDA054967R1	2,300
LTC 3p T5	1SDA054968R1	2,100
LTC 4p T5	1SDA054969R1	2,800
LTC 3p S6-T6	1SDA014038R1	2,300
LTC 4p S6-T6	1SDA014039R1	3,000
LTC 3p F T7-T7M-X1	1SDA063093R1	3,500
LTC 4p F T7-T7M-X1	1SDA063094R1	4,500

Dialogue Unit - PR 222/DS-PD		
Description	**Ordering code**	**M.R.P.**
PR222DS/PD LSI T4-T5-T6	1SDA055066R1	40,000
PR222DS/PD LSIG T4-T5-T6	1SDA055067R1	45,000

Note : Order X3 connector along with dialogue unit

X3 Connector		
Description	**Ordering code**	**M.R.P.**
X3 Connector for fixed circuit-breaker PR222DS or PR223DS	1SDA055059R1	4,500
X3 Connector for plug-in/withdrawable circuit-breaker	1SDA055061R1	4,500

PR010 - Test Unit		
Description	**Ordering code**	**M.R.P.**
Trip Test Unit T2-T4-T5-T6	1SDA048964R1	2,75,000

HMI030		
Description	**Ordering code**	**M.R.P.**
HMI030 interface on the front of switchgear	1SDA063143R1	30,000

Front Display Unit		
Description	**Ordering code**	**M.R.P.**
PR222DS/P or PR222DS/PD T4-T5	1SDA055051R1	25,000
PR222DS/P or PR222DS/PD T6	1SDA060429R1	25,000

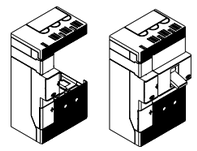
Measurement Module - VM210		
Description	**Ordering code**	**M.R.P.**
VM210 T4-T5-T6	1SDA059602R1	40,000

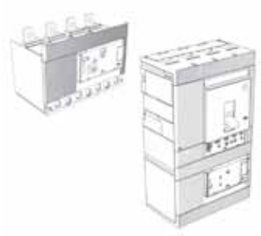
Note : Order X4 connector along with measurement module
Mounted only with PR223/DS

X4 Connector		
Description	**Ordering code**	**M.R.P.**
X4 Connector for fixed circuit-breaker	1SDA055060R1	4,500
X4 Connector for plug-in/withdrawable circuit-breaker	1SDA055062R1	4,500

Interface Module - EP010		
Description	**Ordering code**	**M.R.P.**
PR222/PD T4-T5-T6	1SDA059469R1	40,000

Note : Convertor for Modbus to ASI, DeviceNet & Profibus for MCCB & ACB. Used alog with dialogue module





Residual current releases

SACE RC22x		
Description	**Ordering code**	**M.R.P.**
RC221/1 3p Fixed T1	1SDA051398R1	17,000
RC221/1 4p Fixed T1	1SDA051401R1	19,900
RC222/1 3p Fixed T1	1SDA051400R1	17,000
RC222/1 4p Fixed T1	1SDA051402R1	19,900
RC222/1 Mod200mm 4p Fixed T1	1SDA053869R1	24,400

Description	Ordering code	M.R.P.
RC221/2 4p Fixed T2	1SDA051405R1	21,500
RC222/2 3p Fixed T2	1SDA051404R1	17,700
RC222/2 4p Fixed T2	1SDA051406R1	21,500
RC221/3 3p Fixed T3	1SDA051407R1	21,900
RC221/3 4p Fixed T3	1SDA051409R1	29,200
RC222/3 3p Fixed T3	1SDA051408R1	21,900
RC222/3 4p Fixed T3	1SDA051410R1	29,200
RC222/4 4p Fixed T4	1SDA054954R1	34,500
RC223/4 4p Fixed T4 250	1SDA054956R1	36,300
RC222/5 4p Fixed T5	1SDA054955R1	42,500

Note: The Residual Current Releases for the T2 and T3 Circuit Breakers alwalys Supplied Complete with FC Cu Terminal Kit

Automatic Transfer Switch - ATS

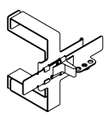
Automatic Transfer Switch		
Description	**Ordering code**	**M.R.P.**
ATS021	1SDA065523R1	85,000
ATS022	1SDA065524R1	95,000

Note : ATS will be used along with either two motorized ACB or MCCBs with required interlocking and changeover base plate as per the requirement.

Tmax accessories

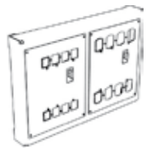
Mechanical Interlock Between Circuit Breakers - MIF		
Description	**Ordering code**	**M.R.P.**
MIF Mechanical Interlock Between 2 Breakers T1-T2-T3	1SDA051396R1	4,000
MIF Mechanical Interlock Between 3 Breakers T1-T2-T3	1SDA052165R1	7,200

Note: Incompatible with the front accessories (solenoid operator, rotary handle operating mechanism) and with the residual current releases.



Mechanical Interlock Between Circuit Breakers - MIR - to be used with copper spreaders only		
Description	**Ordering code**	**M.R.P.**
MIR-H Horizontal Mechanical Interlock T3	1SDA063324R1	6,600
MIR-V Vertical Mechanical Interlock T3	1SDA063325R1	6,600
MIR-HB Horizontal Interlock Frame Unit T4-T5	1SDA054946R1	7,900
MIR-VB Vertical Interlock Frame Unit T4-T5	1SDA054947R1	7,900
MIR-P Plate for Interlock Type A T4 (F-P-W) + T4 (F-P-W)	1SDA054948R1	4,500
MIR-P Plate for Interlock Type B T4 (F-P-W) + T5 400 (F-P-W) or T5 630 (F)	1SDA054949R1	4,500
MIR-P Plate for Interlock Type C T4 (F-P-W) + T5 630 (P-W)	1SDA054950R1	4,500
MIR-P Plate for Interlock Type D T5 400 (F-P-W) or T5 630 (F)+T5 400 (F-P-W) or T5 630 (F)	1SDA054951R1	4,500
MIR-P Plate for Interlock Type E T5 400 (F-P-W) or T5 630 (F) + T5 630 (P-W)	1SDA054952R1	4,500
MIR-P Plate for Interlock Type F T5 630 (P-W) + T5 630 (P-W)	1SDA054953R1	4,500
MIR-H Horizontal Mechanical Interlock T6	1SDA060685R1	14,200
MIR-V Vertical Mechanical Interlock T6	1SDA060686R1	14,200

Note: For interlocking in T4-T5, Please order both Frame and Plate unit



Mechanical Interlock with Cables Between 2 Circuit Breakers		
Description	**Ordering code**	**M.R.P.**
Cable Kit for InterlockT7-T7M-X1	1SDA062127R1	5,900
Cable Kit for InterlockT7-T7M-X1 con E1-6	1SDA064568R1	6,000
Plate for Interlock T7-T7M-X1 Fixed	1SDA062129R1	23,500
Plate for Interlock T7-T7M-X1 With drawble	1SDA062131R1	23,500

Note: It is Necessary to Order 2 Plate and one Kit of Cables

Tmax Conversion Kit

Plug-in and drawout conversion

Frame	Description	Type Code Reference	Ordering code	M.R.P.
3 - Pole				
T2	Plug In MCCB Kit	KIT MP T2 P 3p KIT CONVERSION	1SDA051411R1	3,800
	T2 3P Fixed Part	T2 P FP 3p F	1SDA051329R1	7,000
T3	Plug In MCCB Kit	KIT MP T3 P 3p KIT CONVERSION	1SDA051413R1	3,800
	T3 3P Fixed Part	T3 P FP 3p F	1SDA051331R1	7,000
T4	Plug In MCCB Kit	KIT MP T4 P 3p	1SDA054839R1	5,500
	T4 3P Fixed Part	T4 P FP 3p EF	1SDA054737R1	7,700
T5	Plug In MCCB Kit	KIT MP T5 400 P 3p	1SDA054843R1	7,200
	T5 3P 400A Fixed Part	T5 400 P FP 3p EF	1SDA054749R1	15,600
T5	Plug In MCCB Kit	KIT MP T5 630 P 3p	1SDA054847R1	8,800
	T5 3P 630A Fixed Part	T5 630 P FP 3p EF	1SDA054762R1	18,600
T4	Draw out MCCB Kit	KIT MP T4 W 3p	1SDA054841R1	8,100
	T4 3P Fixed Part	T4 W FP 3p EF	1SDA054743R1	15,100
T5	Draw out MCCB Kit	KIT MP T5 400 W 3p	1SDA054845R1	11,400
	T5 3P 400A Fixed Part	T5 400 W FP 3p EF	1SDA054755R1	25,900
T5	Draw out MCCB Kit	KIT MP T5 630 W 3p	1SDA054849R1	14,600
	T5 3P 630A Fixed Part	T5 630 W FP 3p EF	1SDA054768R1	30,900
T6	Draw out MCCB Kit	KIT MP T6 630/800 W 3p	1SDA060390R1	15,200
	T6 3P 630-800A Fixed Part	T6 W FP 3p EF	1SDA060384R1	32,200
T7	Draw out MCCB Kit	KIT MP T7-T7M-X1 W 3p	1SDA062162R1	24,900
	T7 3P 1000-1250-1600A	T7-X1 W FP 3p EF-EF	1SDA062045R1	47,700
4 - Pole				
T2	Plug In MCCB Kit	KIT MP T2 P 4p KIT CONVERSION	1SDA051412R1	5,000
	T2 4P Fixed Part	T2 P FP 4p F	1SDA051330R1	9,400
T3	Plug In MCCB Kit	KIT MP T3 P 4p KIT CONVERSION	1SDA051414R1	5,000
	T3 4P Fixed Part	T3 P FP 4p F	1SDA051332R1	9,400
T4	Plug In MCCB Kit	KIT MP T4 P 4p	1SDA054840R1	7,300
	T4 4P Fixed Part	T4 P FP 4p EF	1SDA054740R1	10,200
T5	Plug In MCCB Kit	KIT MP T5 400 P 4p	1SDA054844R1	9,500
	T5 4P 400A Fixed Part	T5 400 P FP 4p EF	1SDA054752R1	20,700
T5	Plug In MCCB Kit	KIT MP T5 630 P 4p	1SDA054848R1	11,700
	T5 4P 630A Fixed Part	T5 630 P FP 4p EF	1SDA054765R1	24,700
T4	Draw out MCCB Kit	KIT MP T4 W 4p	1SDA054842R1	10,800
	T4 4P Fixed Part	T4 W FP 4p EF	1SDA054746R1	20,200
T5	Draw out MCCB Kit	KIT MP T5 400 W 4p	1SDA054846R1	15,100
	T5 4P 400A Fixed Part	T5 400 W FP 4p EF	1SDA054758R1	34,500
T5	Draw out MCCB Kit	KIT MP T5 630 W 4p	1SDA054850R1	17,300
	T5 4P 630A Fixed Part	T5 630 W FP 4p EF	1SDA054771R1	41,200
T6	Draw out MCCB Kit	KIT MP T6 630/800 W 4p	1SDA060391R1	18,700
	T6 4P 630-800A Fixed Part	T6 W FP 4p EF	1SDA060387R1	41,800
T7	Draw out MCCB Kit	KIT MP T7-T7M-X1 W 4p	1SDA062163R1	29,000
	T7 4P 1000-1250-1600A	T7-X1 W FP 4p EF-EF	1SDA062049R1	63,800

Tmax Conversion Kit

Accessories:

Connector	ADP 5pin SOR-C /UVR-C T4-T5-T6 P/W	1SDA055173R1	1,700
	ADP 6pin AUX -C T4-T5-T6 P/W	1SDA054922R1	1,300
	ADP 10pin MOE AUE -C T4-T5-T6 P/W	1SDA054924R1	1,700
	ADP 12pin AUX -C T4-T5-T6 P/W	1SDA054923R1	2,200
MOT T7M	LEFT SLIDING CONTAC.MP C.BR.T7-T7M-X1	1SDA062164R1	4,000
	LEFT SLIDING CONTAC.FP C.BR.T7M-X1	1SDA062167R1	5,900
SOR/SCR/UVR/AUX - T7-T7M	RIGHT SLIDING CONTAC.MP C.BR.T7-T7M-X1	1SDA062166R1	4,000
	RIGHT SLIDING CONTAC.FP C.BR.T7M-X1	1SDA062169R1	5,900
Central Block for T7-T7M	Central block - MP T7 - T7M	1SDA062165R1	4,000
	Central block - FP T7 - T7M	1SDA062168R1	5,900

Note: The plug-in version must be composed as follows
1) Fixed circuit-breaker
2) Conversion kit - moving part of plug-in
3) Conversion kit - fixed part of plug-in
4) Cabled version of Aux contact, SOR/UVR has to be ordered with suitable ADP connector

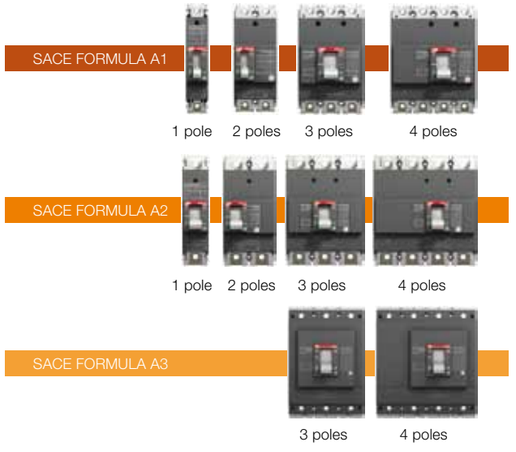
Note: The withdrawable version must be composed as follows
1) Fixed circuit-breaker
2) Conversion kit - moving part of Withdrawable
3) Conversion kit - Fixed part of Withdrawable
4) Front for lever operating mechanism or rotary handle or motor operator
5) Sliding contacts blocks if the circuit-breaker is automatic or fitted with electrical accessories (only for T7)
6) Cabled version of Aux contact, SOR/UVR has to be ordered with suitable ADP connector

FORMULA moulded case circuit breaker

New low voltage moulded case circuit breakers up to 630A

General characteristics

- Conforms to IEC 60947-2
- No derating upto 50 Deg C
- Fixed thermal magnetic release throughout the range
- Compact dimensions
- Common range of accessories
- Available in 1P, 2P, 3P & 4 pole versions
- Line-load reversibility
- Suitable for DC application till 250Vdc
- Operation voltage till 550VAC, insulation voltage of 690VAC and impulse voltage of 6KV

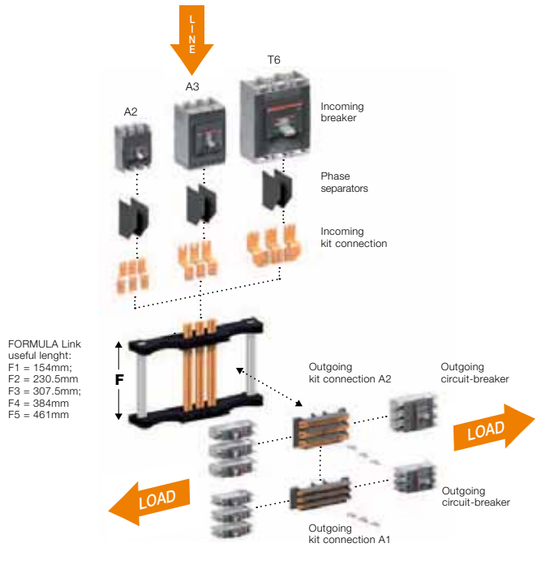


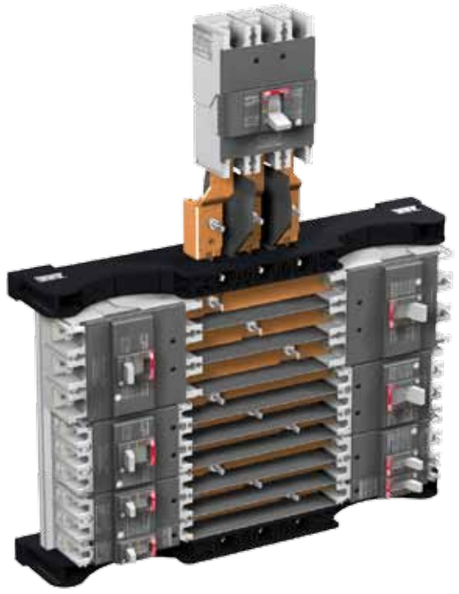
FORMULA A1
- Rated current, In 15...125A
- 1, 2, 3, 4 pole versions
- Icu = 10, 18, 25, 36KA

FORMULA A2
- Rated current, In 125...250A
- 1, 2, 3, 4 pole versions
- Icu = 18, 25, 36KA

FORMULA A3
- Rated current, In 320...630A
- 3, 4 pole versions
- Icu = 36, 50KA

FORMULA link system





- FORMULA link in accordance with IEC 60439 Standard
- FORMULA link is a component of a power distribution system which divides the main power supply over different users
- The FORMULA link is characterised on the supply side by a main circuit-breaker which protects the whole distribution system, and on the load side by smaller sized circuit-breakers, dedicated to the individual users
- FORMULA link assembly for total discrimination between upstream and downstream devices

FORMULA link - Electrical characteristics

FORMULA link frame	[A]	250	400	630/800
Incoming breaker		A2	A3	T6
Outgoing breaker		A1	A1-A2	A1-A2
Rated operational voltage 50/60 Hz	[V]	550AC	550AC	550AC
Rated insulation voltage	[V]	690AC	690AC	690AC
Rated short time withstand current (1s)	[KA]	30	40	40

Fixed thermal and fixed magnetic MCCB

A1 125
TMF

		A1A 125		A 1B 125		A 1C 125		A 1N 125	
		Icu = 10KA, Ics = 50%(Icu)		Icu = 18KA, Ics = 50%(Icu)		Icu = 25KA, Ics = 50%(Icu)		Icu = 36KA, Ics = 50%(Icu)	
In	Poles	Ordering Code	M.R.P.	Ordering Code	M.R.P.	Ordering Code	M.R.P.	Ordering Code	M.R.P.
15	3	1SDA066510R1	1,800	1SDA066697R1	2,200	1SDA066709R1	2,700	1SDA066721R1	3,200
16	3	1SDA068746R1	1,800	1SDA068747R1	2,200	1SDA068748R1	2,700	1SDA068749R1	3,200
20	3	1SDA066511R1	1,800	1SDA066698R1	2,200	1SDA066710R1	2,700	1SDA066722R1	3,200
25	3	1SDA066512R1	1,800	1SDA066699R1	2,200	1SDA066711R1	2,700	1SDA066723R1	3,200
30	3	1SDA066513R1	1,800	1SDA066700R1	2,200	1SDA066712R1	2,700	1SDA066724R1	3,200
32	3	1SDA068757R1	1,800	1SDA068758R1	2,200	1SDA068759R1	2,700	1SDA068760R1	3,200
40	3	1SDA066514R1	1,800	1SDA066701R1	2,200	1SDA066713R1	2,700	1SDA066725R1	3,200
50	3	1SDA066515R1	1,800	1SDA066702R1	2,200	1SDA066714R1	2,700	1SDA066726R1	3,200
60	3	1SDA066516R1	1,800	1SDA066703R1	2,200	1SDA066715R1	2,700	1SDA066727R1	3,200
63	3	1SDA068768R1	1,800	1SDA068769R1	2,200	1SDA068770R1	2,700	1SDA068771R1	3,200
70	3	1SDA066517R1	1,800	1SDA066704R1	2,200	1SDA066716R1	2,700	1SDA066728R1	3,200
80	3	1SDA066518R1	1,800	1SDA066705R1	2,200	1SDA066717R1	2,700	1SDA066729R1	3,200
90	3	1SDA066519R1	1,800	1SDA066706R1	2,200	1SDA066718R1	2,700	1SDA066730R1	3,200
100	3	1SDA066520R1	1,800	1SDA066707R1	2,200	1SDA066719R1	2,700	1SDA066731R1	3,200
125	3	1SDA066521R1	2,100	1SDA066708R1	2,400	1SDA066720R1	2,900	1SDA066732R1	3,400
15	4	1SDA066524R1	2,400	1SDA066733R1	2,800	1SDA066745R1	3,500	1SDA066757R1	4,100
16	4	1SDA068750R1	2,400	1SDA068751R1	2,800	1SDA068752R1	3,500	1SDA068753R1	4,100
20	4	1SDA066525R1	2,400	1SDA066734R1	2,800	1SDA066746R1	3,500	1SDA066758R1	4,100
25	4	1SDA066526R1	2,400	1SDA066735R1	2,800	1SDA066747R1	3,500	1SDA066759R1	4,100
30	4	1SDA066527R1	2,400	1SDA066736R1	2,800	1SDA066748R1	3,500	1SDA066760R1	4,100
32	4	1SDA068761R1	2,400	1SDA068762R1	2,800	1SDA068763R1	3,500	1SDA068764R1	4,100
40	4	1SDA066528R1	2,400	1SDA066737R1	2,800	1SDA066749R1	3,500	1SDA066761R1	4,100
50	4	1SDA066529R1	2,400	1SDA066738R1	2,800	1SDA066750R1	3,500	1SDA066762R1	4,100
60	4	1SDA066530R1	2,400	1SDA066739R1	2,800	1SDA066751R1	3,500	1SDA066763R1	4,100
63	4	1SDA068772R1	2,400	1SDA068773R1	2,800	1SDA068774R1	3,500	1SDA068775R1	4,100
70	4	1SDA066531R1	2,400	1SDA066740R1	2,800	1SDA066752R1	3,500	1SDA066764R1	4,100
80	4	1SDA066532R1	2,400	1SDA066741R1	2,800	1SDA066753R1	3,500	1SDA066765R1	4,100
90	4	1SDA066533R1	2,400	1SDA066742R1	2,800	1SDA066754R1	3,500	1SDA066766R1	4,100
100	4	1SDA066534R1	2,400	1SDA066743R1	2,800	1SDA066755R1	3,500	1SDA066767R1	4,100
125	4	1SDA066535R1	2,600	1SDA066744R1	3,000	1SDA066756R1	3,700	1SDA066768R1	4,400

A2 250
TMF

		A2B 250 Icu = 18KA, Ics = 50%(Icu)		A2C 250 Icu = 25KA, Ics = 50%(Icu)		A2N 250 Icu = 36KA, Ics = 50%(Icu)	
In	Poles	Ordering Code	M.R.P.	Ordering Code	M.R.P.	Ordering Code	M.R.P.
150	3	1SDA068779R1	5,400	1SDA068780R1	5,800	1SDA068781R1	6,600
160	3	1SDA066549R1	5,400	1SDA066776R1	5,800	1SDA066782R1	6,600
175	3	1SDA066550R1	5,400	1SDA066777R1	5,800	1SDA066783R1	6,600
200	3	1SDA066551R1	5,400	1SDA066778R1	5,800	1SDA066784R1	6,600
225	3	1SDA066552R1	5,800	1SDA066779R1	6,200	1SDA066785R1	7,400
250	3	1SDA066553R1	5,800	1SDA066780R1	6,200	1SDA066786R1	7,400
150	4	1SDA068782R1	6,870	1SDA068783R1	7,400	1SDA068784R1	8,500
160	4	1SDA066555R1	6,870	1SDA066788R1	7,400	1SDA066794R1	8,500
175	4	1SDA066556R1	6,870	1SDA066789R1	7,400	1SDA066795R1	8,500
200	4	1SDA066557R1	6,870	1SDA066790R1	7,400	1SDA066796R1	8,500
225	4	1SDA066558R1	7,500	1SDA066791R1	8,500	1SDA066797R1	9,400
250	4	1SDA066559R1	7,500	1SDA066792R1	8,500	1SDA066798R1	9,400

A3 400
TMF

		A3N 400 Icu = 36KA, Ics = 50%(Icu)		A3S 400 Icu = 50KA, Ics = 50%(Icu)	
In	Poles	Ordering Code	M.R.P.	Ordering Code	M.R.P.
320	3	1SDA066560R1	upon request	1SDA066562R1	upon request
400	3	1SDA066561R1	upon request	1SDA066563R1	upon request
320	4	1SDA066568R1	upon request	1SDA066570R1	upon request
400	4	1SDA066569R1	upon request	1SDA066571R1	upon request

A3 630
TMF

		A3N 630 Icu = 36KA, Ics = 50%(Icu)		A3S 630 Icu = 50KA, Ics = 50%(Icu)	
In	Poles	Ordering Code	M.R.P.	Ordering Code	M.R.P.
500	3	1SDA066564R1	upon request	1SDA066565R1	upon request
630	3	1SDA066566R1	upon request	1SDA066567R1	upon request
500	4	1SDA066572R1	upon request	1SDA066573R1	upon request
630	4	1SDA066574R1	upon request	1SDA066575R1	upon request

Accessories

Terminals

Front extended spread terminal - ES	3 pieces	4 pieces	6 pieces	8 pieces
A1	Upon request	Upon request	Upon request	Upon request
A2	Upon request	Upon request	Upon request	Upon request

Rotary handle

	A1-A2	
Description	Ordering code	M.R.P.
RHD - Operating mechanism direct handle	1SDA066154R1	850
RHE - Operating mechanism transmitted handle	1SDA066158R1	1,600

Shunt opening release – SOR-C

Cabled version	A1-A2	
Description	Ordering code	M.R.P.
SOR-C 220...240 VAC - 220...250 VDC	1SDA066137R1	1,300
SOR-C 380...440 VAC	1SDA066138R1	1,300

Auxiliary contacts – AUX-C

Cabled version (numbered cables)	A1-A2	
	3-4 poles	
Description	Ordering code	M.R.P.
AUX-C 1Q + 1SY 250 VAC/DC	1SDA66149R1	1,100

Undervoltage release – UVR-C

Cabled version	A1-A2	
Description	Ordering code	M.R.P.
UVR-C 220...240 VAC - 220...250 VDC	1SDA066146R1	Upon request
UVR-C 380...440 VAC	1SDA066147R1	Upon request

Tmax PV: photovoltaic range moulded case switch disconnector

Tmax PV is the latest T Generation product upto 1600 A / 1100 V DC.

- IEC 60947-3 certification
- 6 different sizes: from the compact T1 (which can be mounted on DIN rail) to the high-performance
  T7, available in the two versions, with lever operating mechanism and motor operator
- Rated insulation voltage up to 1150 V DC
- Advantages like
  - excellent performance-dimensions
  - vast and complete range of accessories for all requirements
  - complete remote control

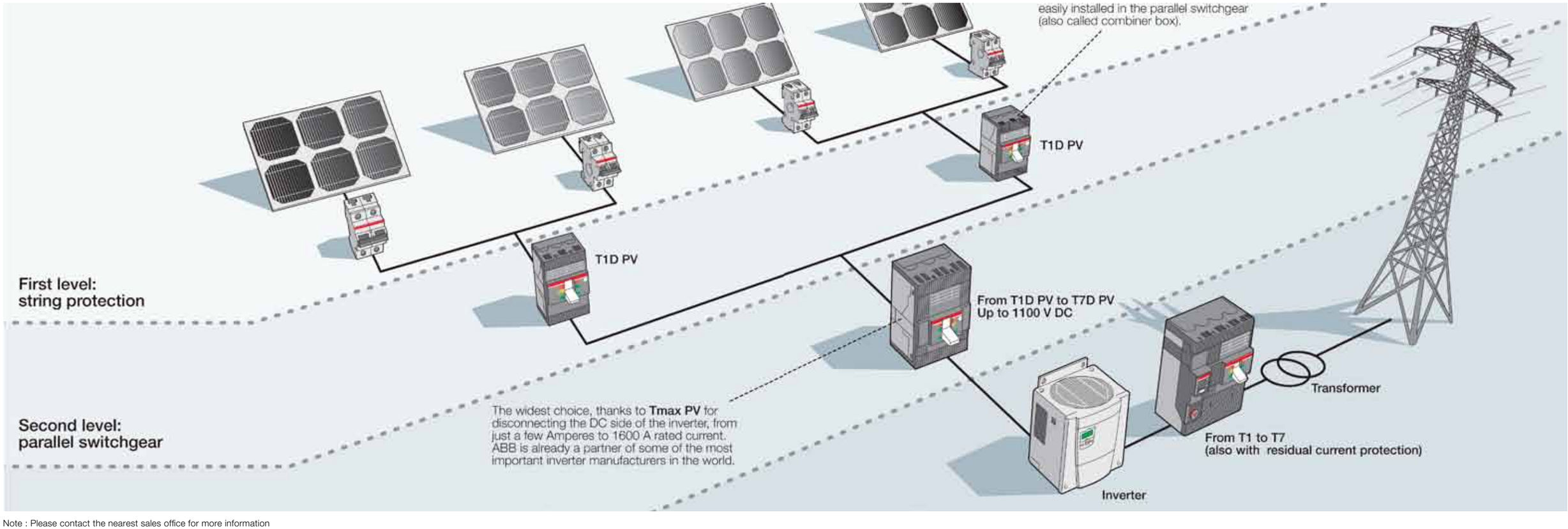
Tmax PV: photovoltaic range moulded case switch disconnector

Technical characteristics

Tmax PV switch-disconnectors in compliance with the IEC60947-3	T1D PV	T3D PV	T4D PV	T5D PV	T6D PV	T7D PV
Conventional thermal current, Ith [A]	160	250	250	630	800	1250/1600
Rated service current in category DC22 B, Ie [A]	160	200	250	500	800	1250/1600
Rated service voltage, Ue [V]	1100 V DC	1100 V DC	1100 V DC	1100 V DC	1100 V DC	1100 V DC
Rated impulse withstand voltage, Uimp [kV]	8	8	8	8	8	8
Rated insulation voltage, Ui [V]	1150 V DC	1150 V DC	1150 V DC	1150 V DC	1150 V DC	1150 V DC
Test voltage at industrial frequency for 1 minute [V]	3500	3500	3500	3500	3500	3500
Rated short-circuit making capacity,switch-disconnector only, Icm [kA]	1.5	2.4	3	6	9.6	19.2
Rated short-time withstand current for 1s, Icw [kA]	1.5	2.4	3	6	9.6	19.2
Versions	F	F	F	F	F	F
Terminals	FC Cu	FC Cu	FC Cu	FC Cu	FC CuAl	FC CuAl
Mechanical life [No. operations]	25000	25000	20000	20000	20000	10000
Mechanical life [No. Hourly operations]	120	120	120	120	120	60

Order codes

Code	Code description	Version / Poles
1SDA069816R1	T1D/PV 160 4p F FC Cu 1100V DC	Fixed / 4p
1SDA069822R1	T3D/PV 200 4p F FC Cu 1100V DC	Fixed / 4p
1SDA069823R1	T4D/PV 250 4p F F 1100V DC	Fixed / 4p
1SDA069824R1	T5D/PV 500 4p F F 1100V DC	Fixed / 4p
1SDA069825R1	T6D/PV 800 4p F F 1100V DC	Fixed / 4p
1SDA069826R1	T7D/PV 1250 4p F F 1100V DC	Fixed / 4p
1SDA069827R1	T7D/PV 1250 4p F F M 1100V DC	Fixed / 4p
1SDA069828R1	T7D/PV 1600 4p F F 1100V DC	Fixed / 4p
1SDA069829R1	T7D/PV 1600 4p F F M 1100V DC	Fixed / 4p



Note : Please contact the nearest sales office for more information

DC rated switch disconnectors for solar segment

OTDC 16…32A

- Modular Design: OTDC from 16…32 Amperes have various DC voltage ratings within the same footprint area. Thanks to its modular design the rated operational voltage can be scaled according to your needs, up to 1000 V.
- "Simple and fast installation: OTDC switch-disconnectors can be DIN rail or screw mounted and have Tunnel terminals for easy termination, Shortcircuit bars are pre-installed as standard."
- Excellent Efficiency: The power losses are very low, minimizing the waste of energy.

OTDC 100A….250A

- Optimal design : These switches achieve 1000 VDC with only two poles
- The OTDC offering includes IEC and UL versions.
- Modularity: The mechanism can be located between the poles or on the side of the switch. Special four pole versions can be made for double circuit applications
  "– 2 pole, 1000 VDC
  – 4 poles, 2 × 1000 VDC"

OT315-630A

- Safe and reliable operation
- Designed for safety

Technical data according to IEC 60947 for switch-disconnectors OTDC and OT

Switch size (A)		OTDC16	OTDC25	OTDC32	OTDC100	OTDC160	OTDC200	OTDC250	OT315	OT400	OT630
Rated insulation voltage Ui (V)	Pollution degree 2	1250①	1250①	1250①	1500	1500	1500	1500	1000	1000	1000
	Pollution degree 3	1000①	1000①	1000①	1500	1500	1500	1500	1000	1000	1000
Dielectric strength (kV)	50 Hz 1 min	6	6	6					10	10	10
Rated impulse withstand voltage (kV)		8	8	8	12	12	12	12	12	12	12
Rated thermal current Ith (A)	In open air, normal conditions2)	25	32	45	100	160	200	250	315	400	630
	In enclosure 40°C	25	32	45	100	160	200	250	315	400	630
	In enclosure 60°C	25	32	32	80	125	160	200	280	320	500
...with minimum cable or bar cross section (mm²)	Cu	4	6	10	35	70	95	120	185	240	2x185
Rated operational current / poles in series (A)	500 V				100/1	160/1	200/1	250/1			
DC-21B	550 V								315/4	400/4	600/4
	660 V	16/2	25/2	32/2							
	800 V								315/5	400/5	600/5
	1000 V	16/3	25/3	32/3	100/2	160/2	200/2	250/2	315/6	400/6	600/6
	1500 V				100/3	160/3	200/3	250/3			
Rated short-time withstand current, 1000 V, 1 s (kA)	R.M.S. -value Icw	0.4	0.6	0.8	5	5	5	5	15	15	20
Power loss / pole (W)	At rated current	0.15	0.3	0.5	2	4	6	9.5	6.5	10	25

EasyLine

Product presentation

Properties of the easyLine - XLP:

- Compact XLP000
- Typetested according to EN IEC 60947-3
- Fullfills BGV A
- Easy to recycle / EN ISO 14001 standards
- Quick-make operation device
- Integrated IP 0 cable termination
- IP 30 degree of protection from the front
- Replacement compatible to similar types in the market
- Voltage measuring from the front
- V-0 plastic materials

3 - pole:

- XLP000 100 Amp
- XLP00 160 Amp
- XLP1 50 Amp
- XLP 400 Amp
- XLP3 630 Amp

Advantages of the easyLine - XLP:

- Easy to install
- Easy to snap on DIN rails
- Easy to operate
- Easy to understand
- Modern cable terminals
- Modern and functional design
- Additional arc protection shroud in front coverincreased personal safety
- Wide range of modern cable clamps and
- Electronice fuse monitoring
- Wide range of busbar adapters

4 - pole:

- SLP00 160 Amp
- SLP1 50 Amp
- SLP 400 Amp
- SLP3 630 Amp

XLP00-PMNS-EFM-3BC

Explanations

XLP = Basic Fuse switch disconnector
XUP = Basic Fuse base without front cover

Apparatus size

PMNS = Prepared for MNS adapter
Axx/yy = A : Adapter xx : Busbardist. yy : Depth mm.

EFM = Electronic Fuse Monitoring

6CC = 6 pcs Cage Clamps (XLP000)
3BC = 3 pcs Bridge Clamps
3TC = 3 pcs Trippel Clamp
3FC = 3 pcs Feeding Clamp
3M8 = 3 pcs Bolts M8
3M10 = 3 pcs Bolts M10

Kabeldon low voltage switchgear system

Kabeldon low voltage distribution system for 1 kV by ABB is used to build modern systems for various applications, from substations and cable distribution cabinets to distribution boards in industry.

Features of the Kabeldon IP-system are its simplicity and reliability. These are the most important factors when you want to achieve low operating costs and high delivery reliability in a distribution system.

- Busbars of continuously-extruded aluminium sections,Insulated with a layer of polyamid.
- The busbar has a touch-proof contact slot. This ensures safety regardless of where on the busbar the switching device will be placed.
- Blade fuses in all of the fuse-switch disconnectors.
- The switching devices can be arranged in any order, regardless of rated current
- All parts, busbars and devices, fulfil IP2X protection in accordance with IEC 60529*).
- Switching devices 100-1600 A.
- It is easy to add new switching devices to existing distribution boards.
- Switching devices are mounted on and connected to the busbar system in the same operation.
- Switching devices can be connected when the system is live.
- Always voltage-free (“dead”) when changing fuses.
- Busbars are available with rated currents from 400 to 1600 A.
- Switching devices, connectors and busbars combine to form a modular system. Each module is 12.5 mm. The modular system makes planning easier.
- The compact design of the switching devices makes them suitable for use in many different types of distribution boards.
- All switching devices have a utilisation category so that they can be used in cable distribution cabinets, substations and other distribution boards.

Note : For more details pl contact the nearest sales office.

Switch fuses for extreme conditions - OS 32…160A gamma series

Numerous applications require switch fuses that can withstand extreme conditions. High voltages and high short circuit currents create a demand for superior performance without neglecting safety.

Superior performance

- High Ui ratings
- High CTI in supporting parts
- The contact constructions are optimal, regardless of fuse type, DIN, BS
- Meets the requirements for installation close to the main transformer up to 100 kA in heavy industry and in ships
- High performance level and smart design makes OS Gamma switch fuses suitable for all applications in low voltage networks

Our new series comprises of two frame sizes OS32G_...63G_ and OS100G_...160G_.

Compact construction

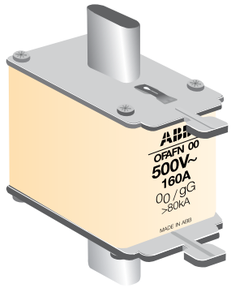
- Intelligent construction in combination with a small number of components results in a very compact mechanism design
- Very small footprint area
- Space savings mean cost reduction

Designed for safety

- The frame is made of robust plastic with excellent mechanical and thermal properties
- Voltage output pins (as standard)
- Pole markings as standard
- The fuse covers cannot be opened while the switch fuse is in the ON-position and can be sealed in the closed position
- You take no risks with OS32...160 Gamma switch fuses

Note : For more details pl contact the nearest sales office.

OFAF HRC fuse links, DIN-type



DIN -type fuse links, gG, 500 V, 80 kA

The type code includes one fuse link, the delivery batch is according to the column.

Fuse size	Rated current In (A)	Item description	Ordering Code	Delivery batch [pcs]	M.R.P.
000	2	OFAFN000GG2	1SCA107747R1001	6	280
	6	OFAFN000GG6	1SCA107748R1001	6	280
	10	OFAFN000GG10	1SCA107749R1001	6	280
	16	OFAFN000GG16	1SCA107750R1001	6	280
	20	OFAFN000GG20	1SCA107751R1001	6	280
	25	OFAFN000GG25	1SCA107751R1002	6	280
	32	OFAFN000GG32	1SCA107752R1001	6	280
	63	OFAFN000GG63	1SCA107753R1001	6	280
00	6	OFAFN00GG6	1SCA107754R1001	6	420
	10	OFAFN00GG10	1SCA107755R1001	6	420
	16	OFAFN00GG16	1SCA107756R1001	6	420
	20	OFAFN00GG20	1SCA107757R1001	6	420
	25	OFAFN00GG25	1SCA107758R1001	6	420
	32	OFAFN00GG32	1SCA107759R1001	6	420
	50	OFAFN00GG50	1SCA107760R1001	6	420
	63	OFAFN00GG63	1SCA107761R1001	6	420
	80	OFAFN00GG80	1SCA107762R1001	6	420
	100	OFAFN00GG100	1SCA107763R1001	6	420
	125	OFAFN00GG125	1SCA107764R1001	6	475
	160	OFAFN00GG160	1SCA107765R1001	6	505
0	160	OFAF0H160	1SCA022627R3170	3	605
	200	OFAF0H200	1SCA022629R5140	3	605
1	32	OFAFN1GG32	1SCA107766R1001	6	620
	50	OFAFN1GG50	1SCA107767R1001	6	620
	63	OFAFN1GG63	1SCA107768R1001	6	620
	80	OFAFN1GG80	1SCA107769R1001	6	620
	100	OFAFN1GG100	1SCA107770R1001	6	620
	125	OFAFN1GG125	1SCA107771R1001	6	620
	160	OFAFN1GG160	1SCA107772R1001	6	620
	200	OFAFN1GG200	1SCA107773R1001	3	660
	250	OFAFN1GG250	1SCA107774R1001	3	705
2	100	OFAFN2GG100	1SCA107775R1001	3	900
	125	OFAFN2GG125	1SCA107776R1001	3	900
	250	OFAFN2GG250	1SCA107778R1001	3	900
	315	OFAFN2GG315	1SCA107779R1001	3	915
	400	OFAFN2GG400	1SCA107780R1001	3	915
3	315	OFAFN3GG315	1SCA107781R1001	3	1,460
	500	OFAFN3GG500	1SCA107783R1001	3	1,460
	630	OFAFN3GG630	1SCA107784R1001	3	1,500
	800	OFAFN3GG800	1SCA107785R1001	3	2,100

Note: Pl contact our nearest sales office
*For requirement of DIN type 690V, 120KA.
*For size 4, 4A (400-1250A), 5(1250, 1600A)

Din type fuse bases

SL.No	Ordering Code	Description	No of Poles	Rating in Amps	M.R.P.
1	1SCA833001R2001	Size 00 Fuse Base -Din type	1	160	350
2	1SCA833001R2002	Size 1 Fuse Base -Din type	1	250	650
3	1SCA833001R2003	Size 2 Fuse Base -Din type	1	400	1,300
4	1SCA833001R2004	Size 3 Fuse Base -Din type	1	630	1,350

OFAF HRC fuse links, BS-type

BS -type fuse links, gG, 500 V, 80 kA

The type code includes one fuse link, but the delivery batch is according to the column.

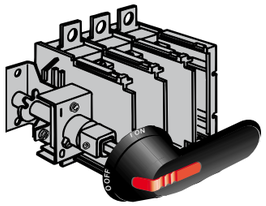
BS-fuse type	Rated current In [A]	Item description	Ordering Code	Delivery batch [pcs]	M.R.P.
Tag type: Offset					
F1	2	OFFNF1GG2	1SCA107786R1001	10	55
	4	OFFNF1GG4	1SCA107787R1001	10	55
	6	OFFNF1GG6	1SCA107788R1001	10	55
	10	OFFNF1GG10	1SCA107789R1001	10	55
	16	OFFNF1GG16	1SCA107790R1001	10	55
	20	OFFNF1GG20	1SCA107791R1001	10	55
	25	OFFNF1GG25	1SCA107792R1001	10	60
	32	OFFNF1GG32	1SCA107793R1001	10	60
Tag type : Offset, two holes fixing 20					
A2	6	OFFNA2GG6	1SCA107795R1001	10	75
	10	OFFNA2GG10	1SCA107796R1001	10	75
	16	OFFNA2GG16	1SCA107798R1001	10	75
	20	OFFNA2GG20	1SCA107827R1001	10	75
	25	OFFNA2GG25	1SCA107800R1001	10	90
	32	OFFNA2GG32	1SCA107801R1001	10	90
A3	40	OFFNA3GG40	1SCA107803R1001	10	110
	50	OFFNA3GG50	1SCA107804R1001	10	140
	63	OFFNA3GG63	1SCA107805R1001	10	140
A4	50	OFFNA4GG50	1SCA107806R1001	10	180
	63	OFFNA4GG63	1SCA107807R1001	10	180
	80	OFFNA4GG80	1SCA107808R1001	10	180
	100	OFFNA4GG100	1SCA107809R1001	10	190
	125	OFFNA4GG125	1SCA107810R1001	10	225
Tag type: Offset					
B1	50	OFFNB1GG50	1SCA107811R100110	10	225
	63	OFFNB1GG63	1SCA107812R100110	10	240
	80	OFFNB1GG80	1SCA107813R1001	10	240
	100	OFFNB1GG100	1SCA107814R1001	10	240
B2	125	OFFNB2GG125	1SCA107816R1001	10	265
	160	OFFNB2GG160	1SCA107817R1001	5	310
	200	OFFNB2GG200	1SCA107818R1001	5	310
Tag type: Central, two holes fixing 10					
B3	250	OFFNB3GG250	1SCA107819R1001	1	425
	315	OFFNB3GG315	1SCA107820R1001	1	435
B4	400	OFFNB4GG400	1SCA107822R1001	1	755
Tag type: Central, four holes fixing					
C1	400	OFFNC1GG400	1SCA107823R1001	1	1,230
C2	500	OFFNC2GG500	1SCA107824R1001	1	1,280
C2	630	OFFNC2GG630	1SCA107825R1001	1	1,280
C3	800	OFFNC3GG800	1SCA107826R1001	1	1,280

BS type fuse bases

Ordering Code	Description	No of Connection	No of Poles	Rating in Amps	Unit Rate
1SYN833001R2005	Control Fuse Base	Front Type	1	20	150
1SYN833001R2009	Control Fuse Base	Front Type	1	32	180

Note : Minimum packing for ordering of BS type fuse bases is 100nos

OESA/OS switch disconnector fuse, DIN-types



DIN type

32A - 1250A SDF supplied with shaft and IP65 handle

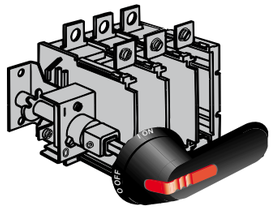
Mechanism at the end of the switch fuse

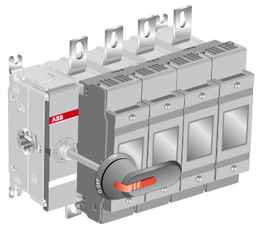
Rated current [A]	Number of poles	Fuse size	Item description	Ordering code	M.R.P.
32	3	000/00	OESA00-32	1SCA022058R7710	1,800
	TPN		OESA0032N	OESA0032N	1,900
	4		OESA 00-32A4	1SCA022067R7610	2,100
63	3	000/00	OESA 00-63	1SCA022057R6850	2,500
	TPN		OESA0063N	OESA0063N	2,600
	4		OESA 00-63A4	1SCA022057R7740	2,800
100	3	00	OESA00 100	1SCA022025R7830	5,000
	TPN		OESA00100N	OESA00100N	5,200
	4		OESA00100A4	1SCA022043R6760	5,600
125	3	00	OESA 00125	OESA00125	6,700
	TPN		OESA00125N	OESA00125N	7,000
	4		OESA00125A4	OESA00125A4	7,500
160	3	00	OESA00-160	1SCA022077R8130	7,200
	TPN		OESA00160N	OESA00160N	7,800
	4		OESA 00-160A4	1SCA022080R7840	8,500
200	3	0	OS200D03P	1SYN022709R9500	9,300
	TPN		OS200D03N3P	1SYN022749R8710	9,600
	4		OS200D04N2P	1SYN022709R9680	11,000
250	3	0-1	OS250D03P	1SYN022719R0090	11,600
	TPN		OS250D03N3P	1SYN022749R9430	11,800
	4		OS250D04N2P	1SYN022719R2380	13,200
315	3	0-2	OS315D03P	1SYN953046P3001	16,800
	TPN		OS315D03N3P	1SYN953047P3001	17,200
	4		OS315D04N2P	1SYN953048P3001	18,500
400	3	0-2	OS400D03P	1SYN022719R0250	17,200
	TPN		OS400D03N3P	1SYN022753R9320	17,500
	4		OS400D04N2P	1SYN022719R2460	19,000
630	3	3	OS630D03P	1SYN022825R2830	28,500
	TPN		OS630D03N3P	1SYN100858R1001	29,000
	4		OS630D04N2P	1SYN022825R4290	32,000
800	3	3	OS800D03P	1SYN022825R4880	31,000
	TPN		OS800D03N3P	1SYN100859R1001	31,500
	4		OS800D04N2P	1SYN022825R5180	34,500

Notes:
Fourth pole of all SFU's are 100% rated and are in the switched neutral (SN) version.

Contact our nearest sales office
- For 1250A Switch disconnector fuse requirement
- For mechanism inbetween poles configuration
- For Motorized Switch disconnector fuse requirement

OESA/OS switch disconnector fuse, BS-types





BS

32A - 1250A SDF supplied with shaft and IP65 handle

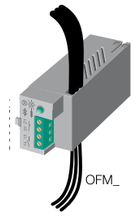
Mechanism at the end of the switch fuse

Rated current [A]	Number of poles	Fuse size	Item description	Ordering code	M.R.P.
32	3	A2	OESA32G1	1SCA022057R1540	1,800
	TPN		OESA32G1N	OESA32G1N	1,900
	4		OESA32G4	1SCA022059R9040	2,100
63	3	A3	OESA63G1	1SCA022057R0310	2,500
	TPN		OESA63G1N	OESA63G1N	2,600
	4		OESA63G4	1SCA022057R1110	2,800
100	3	A4	OESA100G1	1SCA022042R0920	5,000
	TPN		OESA100G1N	OESA100G1N	5,200
	4		OESA100G4	1SCA022043R7570	6,800
125	3	A4	OESA125G1	OESA125G1	6,200
	TPN		OESA125G1N	OESA125G1N	6,400
	4		OESA125G4	OESA125G4	8,000
160	3	B2	OESA160B3	1SCA022076R9570	6,800
	TPN		OESA160B3N	OESA160B3N	7,000
	4		OESA160B4	1SCA022080R3690	8,600
200	3	B1-B2	OS200B03P	1SYN022709R9330	8,200
	TPN		OS200B03N3P	1SYN022750R0620	8,400
	4		OS200B04N2P	1SYN022709R9410	11,000
250	3	B1-B3	OS250B03P	1SYN022750R6660	10,500
	TPN		OS250B03N3P	1SYN022750R8010	11,000
	4		OS250B04N2P	1SYN022750R7800	13,500
315	3	B1-B4	OS315B03P	1SYN022719R0680	15,300
	TPN		OS315B03N3P	1SYN022753R8940	15,500
	4		OS315B04N2P	1SYN022719R2710	18,300
400	3	B1-B4	OS400B03P	1SYN022719R0840	15,600
	TPN		OS400B03N3P	1SYN022753R9160	15,800
	4		OS400B04N2P	1SYN022719R2890	18,500
630	3	C1-C2	OS630B03P	1SYN022825R5850	26,700
	TPN		OS630B03N3P	1SYN100860R1001	27,000
	4		OS630B04N2P	1SYN022825R6230	31,000
800	3	C1-C3	OS800B03P	1SYN022825R7550	32,000
	TPN		OS800B03N3P	1SYN100861R1001	32,500
	4		OS800B04N2P	1SYN022825R8010	36,000

Note:
Fourth pole of all SFU's are 100% rated and are in the switched neutral (SN) version.

Contact our nearest sales office
- For 1250A Switch disconnector fuse requirement
- For mechanism inbetween poles configuration
- For Motorized Switch disconnector fuse requirement

Accessories for OESA/OS switch disconnector fuse, 32..1250 A



Wrapped neutral link

For SDF ratings	Type code reference	Units/type [pcs]	M.R.P.
32…63A	OESAZX 87	1	320
100…160A	OESAZX 86	1	605

Auxiliary contacts

For SDF ratings	Contact function	Type code reference	Units/type [pcs]	M.R.P.
OESA 32...160	1NO+1NC	OESAZX 15	1	370
	2NO+2NC	OESAZX 16	1	740

For SDF ratings	Contact function	Type code reference	Order number	Qty	M.R.P.
OS200...1250	1NO	OA1G10	1SCA022353R4970	1	525
	1NC	OA3G01	1SCA022456R7410	1	680
Module for auxiliary contacts					
Screw mounting to the left side of the switch		OEA28	1SCA022714R8810	1	1,800

Note:
OEA 28 has to be order along with TPN switch

Extension ring for pistol type handles

For SDF ratings	Colour	Suitable for handles	Type code reference	Order number	Units/type [pcs]	M.R.P.
OS200...800	Black	OHB_	OHZX14	1SCA022851R6590	1	700

Fuse replacement handles

Suitable for DIN fuse link size	Type	Ordering code	Units/type [pcs]	M.R.P.
000,00,0,1,2,3	OFAE504	1SCA022007R6880	1	3,000

Phase barriers

Suitable for switches	Number of pole	Height h (mm)	Item description	Ordering code	Units/ type [pcs]	M.R.P.
OS200...400 for BS & DIN type	3	100	PB100 low	1SDA054970R1	4	500
	4	100	PB100 low	1SDA054971R1	6	725

Mechanical interlock mechanism

Suitable for switches	Remarks	Shaft distance [mm]	Item description	Ordering code	Units/ type [pcs]	M.R.P.
OS200-250	Two 3- or 4-pole switches needed	190	OTZW10	1SCA022431R5280	1	7,000
OS315-800	Two 3- or 4-pole switches needed	250	OETLZW14	1SCA022077R3410	1	7,500
OS315-800	Two 3- or 4-pole switches needed	300	OETLZW3	1SCA022049R0380	1	8,000
OS315-1250	Two 3- or 4-pole switches needed	500	OETLZW15	1SCA022081R9340	1	9,000

Fuse monitor

Rated voltage [Vac]	Item description	Ordering code	Units/ type [pcs]	M.R.P.
100...260	OFM260	1SCA022459R8560	1	4,100
380...690	OFM690	1SCA022459R8480	1	4,500
Electronic fuse monitor, including 1NO + 1NC auxiliary contacts. Mounting onto the left side of OS200-1250 switch fuse or on DIN-rail.				
100…260	OFS260	1SCA022716R0180	1	5,550
380…690	OFS690	1SCA022715R9920	1	6,000

Mounting accessories for fuse monitor

Suitable for	Flat terminal size [mm	Item description	Ordering code	Units/ type [pcs]	M.R.P.
Crimp terminals					
OS_	2.8 - 0.8	OFMZX2	1SCA022475R9910	6	400
Mounting frame					
- Mounting on the left side of the switch					
OS Mini		OSZ4	1SCA022530R0200	1	550

OT switch-disconnectors

OT 63 - 80F3

Front operated switch-disconnectors

OT 16-3150A switch disconnector supplied with extended shaft and IP 65 pistol type handle

Number of poles	Rated operation current (A)	Item description	Ordering code	Delivery batch [pcs]	M.R.P.
3	16	OT16F3	1SYN104811R1001	1	2,300
4		OT16F4N2	1SYN104829R1001	1	2,600
3	25	OT25F3	1SYN104857R1001	1	2,400
4		OT25F4N2	1SYN104886R1001	1	2,700
3	40	OT40F3	1SYN104902R1001	1	2,800
4		OT40F4N2	1SYN104932R1001	1	3,100
3	63	OT63F3	1SYN105332R1001	1	3,400
4		OT63F4N2	1SYN105365R1001	1	3,900
3	80	OT80F3	1SYN105798R1001	1	4,000
4		OT80F4N2	1SYN105413R1001	1	4,600
3	100	OT100F3	1SYN105004R1001	1	5,400
4		OT100F4N2	1SYN105018R1001	1	6,200
3	125	OT125F3	1SYN105033R1001	1	6,300
4		OT125F4N2	1SYN105051R1001	1	6,800

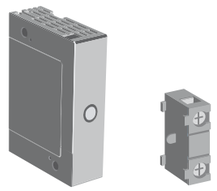
Contact our nearest sales office
- For Door mounted switch disconnector
- For different configuration of Shaft and Handle(selector type)
- For 6 & 8pole switch disconnectorrequirement

3	160	OT160EV03P	1SCA120514R1001	1	8,300
4		OT160EV04P	1SCA120521R1001	1	9,500
3	200	OT200E03P	1SCA022712R0800	1	8,400
4		OT200E04P	1SCA022713R4930	1	11,000
3	250	OT250E03P	1SCA022710R0100	1	9,500
4		OT250E04P	1SCA022710R0520	1	12,000
3	315	OT315E03P	1SCA022718R8510	1	11,000
4		OT315E04P	1SCA022719R1730	1	13,000
3	400	OT400E03P	1SCA022718R8780	1	13,000
4		OT400E04P	1SCA022719R1810	1	16,000
3	630	OT630E03P	1SCA022718R8940	1	20,000
4		OT630E04P	1SCA022719R2030	1	24,000
3	800	OT800E03P	1SCA022718R9410	1	22,000
4		OT800E04P	1SCA022719R2110	1	27,500
3	1000	OT1000E03P	1SCA022860R5930	1	47,000
4		OT1000E04P	1SCA022860R6150	1	60,000
3	1250	OT1250E03P	1SCA022860R6230	1	60,000
4		OT1250E04P	1SCA022860R6310	1	78,000
3	1600	OT1600E03P	1SCA022860R6580	1	76,000
4		OT1600E04P	1SCA022860R6740	1	99,000
3	2000	OT2000E03P	1SCA108036R1001	1	93,000#
4		OT2000E04P	1SCA108038R1001	1	1,17,000#
3	2500	OT2500E03P	1SCA104972R1001	1	1,07,000#
4		OT2500E04P	1SCA105140R1001	1	1,40,000#
3	3150	OETL3150K3	1SCA022115R6340	1	1,57,000#
4		OETL3150K4	1SCA022115R6510	1	2,04,000#

Note:
Marked products carry list prices

Contact our nearest sales office
- For requirement of Motorized isolators
- For mechanism inbetween poles configuration
- For switch disconnector with direct mounted handle

Accessories for OT switch-disconnectors



Auxilary contact

Suitable for switches	Contact function	Type code reference	Ordering code	Qty	M.R.P.
OT16...125	1NC	OA1G01	1SCA022353R4890	1	525
	1NO	OA1G10	1SCA022353R4970	1	525
OT160EV...2500	1NO	OA1G10	1SCA022353R4970	1	525
	1NC	OA3G01	1SCA022456R7410	1	680
OETL3150	1NO+1NC	OZXK1	1SCA022131R8690	1	1,500
Module for auxiliary contacts					
Screw mounting to the left side of the switch		OEA28	1SCA022714R8810	1	1,800

Phase barrier

Suitable for switches	Item description	Ordering code	Units / type	M.R.P.
Simultaneous function with the main contacts				
OT200…OT800, 3P	PB100 low	1SDA054970R1	1	500
OT200…OT800, 4P	PB100 low	1SDA054971R1	1	750
OT1000…2500, 3- and 4-pole	OTB1600/6	1SCA100768R1001	1	3,750

Mechanical interlock mechanism

Suitable for switches	Shaft distance [mm]	Item description	Ordering code	Units/ type [pcs]	M.R.P.
OT16...125	100	OTZW24	1SCA022639R5610	1	2,000
OT160...250	190	OTZW10	1SCA022431R5280	1	3,000
OT315...400	250	OETLZW14	1SCA022077R3410	1	7,500
OT315...800	300	OETLZW3	1SCA022049R0380	1	8,000
OT315...2500 & OETL 3150	500	OETLZW15	1SCA022081R9340	1	9,000

Terminal shrouds

Snap-on mounting, transparent

For 3-pole switches

Suitable for switches	Item description	Ordering code	Units/ type [pcs]	M.R.P.
OT 16...40F3	OTS40T3	1SCA105317R1001	1	350
OT63...80F3	OTS63T3	1SCA022353R6750	1	250
OT 100...125F3	OTS125T3	1SCA022379R9680	1	500

For 1 to 4-pole switches, shroud for single pole and for fourth pole

OTP_40F_4	OTS40T1	1SCA105314R1001	1	150
OTP_80F_4	OTS63T1	1SCA022353R6910	1	200
OTP_125F_4	OTS125T1	1SCA022379R9760	1	500

Note:
for requirement of Terminal shrouds for higher current rating contact our nearest sales office

OT manual changeover switches

Manual changeover switches, I-O-II -operation

Including a shaft & handle

Number of poles	Rated current (A)	Item description	Ordering code	M.R.P.
3	16	OT16F3C	1SYN104816R1001	3,800
4		OT16F4C	1SYN104831R1001	4,800
3	25	OT25F3C	1SYN104863R1001	4,900
4		OT25F4C	1SYN104877R1001	5,800
3	40	OT40F3C	1SYN104913R1001	5,900
4		OT40F4C	1SYN104934R1001	7,000
3	63	OT63F3C	1SYN105338R1001	6,500
4		OT63F4C	1SYN105369R1001	7,500
3	80	OT80F3C	1SYN105402R1001	7,000
4		OT80F4C	1SYN105418R1001	7,900
3	100	OT100F3C	1SYN105008R1001	9,600
4		OT100F4C	1SYN105019R1001	11,200
3	125	OT125F3C	1SYN105037R1001	10,000
4		OT125F4C	1SYN105054R1001	11,800
Including a shaft, handle & bridging bars				
3	160	OT160E03CP	1SYN022772R6510	13,000
4		OT160E04CP	1SYN022775R9440	15,500
3	200	OT200E03CP	1SYN022771R7520	13,500
4		OT200E04CP	1SYN022771R7280	16,000
3	250	OT250E03CP	1SYN022771R3450	15,500
4		OT250E04CP	1SYN022775R4640	17,000
3	315	OT315E03CP	1SYN022772R6780	18,500
4		OT315E04CP	1SYN022775R7150	21,500
3	400	OT400E03CP	1SYN022771R8500	24,000
4		OT400E04CP	1SYN022771R8680	26,000
3	630	OT630E03CP	1SYN022785R6050	37,000
4		OT630E04CP	1SYN022785R6130	44,000
3	800	OT800E03CP	1SYN022785R6300	45,000
4		OT800E04CP	1SYN022785R6210	50,000
3	1000	OT1000E03CP	1SYN022872R1680	1,30,000#
4		OT1000E04CP	1SYN022872R1500	1,47,000#
3	1250	OT1250E03CP	1SYN022872R0790	1,45,000#
4		OT1250E04CP	1SYN022872R1250	1,58,000#
3	1600	OT1600E03CP	1SYN022872R1840	1,53,000#
4		OT1600E04CP	1SYN022872R2310	1,70,000#
3	2000	OT2000E03CP	1SYN103908R1001	2,67,000#
4		OT2000E04CP	1SYN103912R1001	3,41,000#
3	2500	OT2500E03CP	1SYN105615R1001	2,96,000#
4		OT2500E04CP	1SYN103906R1001	3,80,000#

Marked products carry list prices

OT motorized changeover switches

Changeover switches, motor operation, I-O-II -operation

Including a shaft, handle & bridging bars

Number of poles	Rated current (A)	Item description	Ordering code	M.R.P. [rs]
Motor voltage Ue 110-240 V AC/DC				
3	40	OTM40F3CMA230V	1SYN120096R1001	31,000
4		OTM40F4CMA230V	1SYN120102R1001	32,000
3	63	OTM63F3CMA230V	1SYN120095R1001	32,500
4		OTM63F4CMA230V	1SYN120101R1001	33,000
3	80	OTM80F3CMA230V	1SYN120093R1001	33,500
4		OTM80F4CMA230V	1SYN120100R1001	34,000
3	100	OTM100F3CMA230V	1SYN120071R1001	34,500
4		OTM100F4CMA230V	1SYN120098R1001	35,000
3	125	OTM125F3CMA230V	1SYN120070R1001	35,500
4		OTM125F4CMA230V	1SYN120097R1001	36,000
Motor voltage Ue 220-240 V AC				
3	160	OTM160E3CM230C	1SYN022845R8610	37,500
4		OTM160E4CM230C	1SYN022848R1510	38,000
3	200	OTM200E3CM230C	1SYN022845R8960	38,500
4		OTM200E4CM230C	1SYN022846R1590	39,000
3	250	OTM250E3CM230C	1SYN022845R9260	47,000
4		OTM250E4CM230C	1SYN022846R1910	48,000
3	315	OTM315E3CM230C	1SYN022847R1210	49,000
4		OTM315E4CM230C	1SYN022847R2870	50,000
3	400	OTM400E3CM230C	1SYN022847R1630	55,000
4		OTM400E4CM230C	1SYN022847R3250	62,000
3	630	OTM630E3CM230C	1SYN103567R1001	65,000
4		OTM630E4CM230C	1SYN022873R1990	72,000#
3	800	OTM800E3CM230C	1SYN103570R1001	92,000#
4		OTM800E4CM230C	1SYN022872R8340	1,00,000#
3	1000	OTM1000E3CM230C	1SYN112677R1001	1,55,000#
4		OTM1000E4CM230C	1SYN112703R1001	1,60,000#
3	1250	OTM1250E3CM230C	1SYN112676R1001	1,65,000#
4		OTM1250E4CM230C	1SYN112702R1001	1,70,000#
3	1600	OTM1600E3CM230C	1SYN112678R1001	1,95,000#
4		OTM1600E4CM230C	1SYN112704R1001	2,10,000#
3	2000	OTM2000E3CM230C	1SYN112709R1001	3,05,000#
4		OTM2000E4CM230C	1SYN112712R1001	3,30,000#
3	2500	OTM2500E3CM230C	1SYN112710R1001	3,35,000#
4		OTM2500E4CM230C	1SYN112713R1001	3,60,000#

Marked products carry list prices

Note: OMD control units can be purchased separately for their motorized changeover switches in order to build an ATS by themselves. Contact nearest sales office for making selection

Contact our neast sales office
- For motor voltage Ue 110...125 V AC/DC (160A-2500A)
- For motor voltage Ue = 48V DC (160A-2500A)

OT automatic transfer switches

Automatic transfer switches, I - O - II operation

Including a shaft, handle & bridging bars

Motor voltage Ue 220-240 V AC

Automatic operation, equipped with OMD300 controller unit				
4	160	OTM160E4C3D230C	1SYN106305R1001	95,000
4	200	OTM200E4C3D230C	1SYN106309R1001	98,000
4	250	OTM250E4C3D230C	1SYN106313R1001	100,000
4	315	OTM315E4C3D230C	1SYN106317R1001	110,000
4	400	OTM400E4C3D230C	1SYN106318R1001	115,000
4	630	OTM630E4C3D230C	1SYN108726R1001	1,40,000#
4	800	OTM800E4C3D230C	1SYN108728R1001	1,90,000#
4	1000	OTM1000E4C3D230C	1SYN112852R1001	2,15,000#
4	1250	OTM1250E4C3D230C	1SYN112851R1001	2,40,000#
4	1600	OTM1600E4C3D230C	1SYN112848R1001	3,00,000#
Automatic operation, equipped with OMD800 controller unit with display				
4	160	OTM160E4C8D230C	1SYN101020R1001	1,30,000
4	200	OTM200E4C8D230C	1SYN101021R1001	1,40,000
4	250	OTM250E4C8D230C	1SYN101022R1001	1,45,000
4	315	OTM315E4C8D230C	1SYN101063R1001	1,60,000
4	400	OTM400E4C8D230C	1SYN101064R1001	1,80,000
4	630	OTM630E4C8D230C	1SYN108453R1001	1,90,000#
4	800	OTM800E4C8D230C	1SYN108455R1001	2,00,000#
4	1000	OTM1000E4C8D230C	1SYN112861R1001	2,50,000#
4	1250	OTM1250E4C8D230C	1SYN112864R1001	2,70,000#
4	1600	OTM1600E4C8D230C	1SYN112867R1001	3,00,000#

Note:
- For 3 pole requirement please contact the nearest sales office

Marked products carry list prices

Accessories for changeovers (manual, motorized, ATS)

Auxiliary contacts

Suitable for switches	Contact functions	Installation side	Item description	Ordering code	M.R.P.
OT16...125F_C	1NO	Right	OA1G10	1SCA022353R4970	525
	1NC	Left	OA1G01	1SCA022353R4890	525
OTM40...125F_CM	1NO	Right	OA1G10	1SCA022353R4970	525
	1NC	Right	OA8G01	1SCA022744R2240	900
	1NO	Left	OA7G10	1SCA022673R1140	700
	1NC	Left	OA1G01	1SCA022353R4890	525

Suitable for switches	Contactfunctions	Installation side	Item description	Ordering code	M.R.P.
OT_160...2500E_C / OTM160...2500E_CM	1NO	Right	OA1G10	1SCA022353R4970	525
	1NC	Right	OA3G01	1SCA022456R7410	685

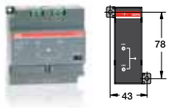
Phase separators

Suitable for switches	Item description	Ordering code	M.R.P.
OT1000…2500, 3- and 4-pole	OTB1600/6C	1SCA104661R1001	6,000

Phase barriers

3-pole change-overs need 8 barriers and 4-pole change-overs need 12 barriers for full protection.

Suitable for switches	Number of poles	Height h [mm]	Cutting width w of the phase barrier [mm]	Item description	Ordering code	M.R.P.
OT160... 250E_C	3	100	55	PB100 low	1SDA054970R1	700
	4	100	55	PB100 low	1SDA054971R1	1,000
OT315... 400E_C	3	100	67	PB100 low	1SDA054970R1	700
	4	100	67	PB100 low	1SDA054971R1	1,000
OT600... 800E_C	3	100	90	PB100 low	1SDA054970R1	700
	4	100	90	PB100 low	1SDA054971R1	1,000



New dual power source

Item description	Ordering code	Delivery batch [pcs]	M.R.P.
ODPS230	1SCA122946R1001	1	15,000
ODPS230C	1SCA116892R1001	1	10,000

Note: Contact our nearest sales office for more information

Rotary cam switches ordering details

Black handle and front plate with position indication are included

ON - OFF

Function	Rated thermal current	Poles	Item Description	Ordering code	Delivery batch	MRP
0-1	10A	3	OMA3PB	1SCA022531R4170	1	1,600
		4	OMA4PB	1SCA022531R4330	1	1,900
	25A	3	ONA3PB	1SCA022531R5140	1	2,000
		4	ONA4PB	1SCA022531R5220	1	2,100
	45A	3	OL40A3PB	1SCA022755R7310	1	2,200
		4	OL40A4PB	1SCA022755R7490	1	2,300
Voltmeter switches						
3 Positions, 3 phase -3 wire, without 0-position, step angle 45° L1-L2, L2-L3, L3-L1	10A	2	OMVN3PB	1SCA022558R4470	1	1,300
	25A	2	ONVN3PB	1SCA022558R4630	1	2,200
4 Positions, 3 phase -3 wire, with 0-position, step angle 45° 0, L1-L2, L2-L3,L3-L1	10A	2	OMV3PB	1SCA022533R5250	1	2,000
	25A	2	ONV3PB	1SCA022533R5680	1	2,500
Ammeter switches						
Door mounted, snap-on mounted handle 0-1-2-3	10A	1	OMAU31PB	1SCA022533R5410	1	2,500
	25A	1	ONAU31PB	1SCA022533R5840	1	2,800

ABB's comprehensive range of LV control products

The range of ABB control products ranks amongst the most extensive on the market with a full range of innovative solutions for protection, start & control, detection, dialogue, measurement, treatment and connection application

The business unit is comprised of 3 main product families :
- Control & Protection
- Electronic Relays
- Connection Devices - Terminal Blocks

Other products

Our program is already among the most extensive in the market and we are constantly adding new products in order to meet ever changing customer needs.
Quality and reliability are built into every device to ensure total performance satisfaction, even in the most demanding applications.
We offer a very modern and competitive range of contactors, softstarters, starters, limit switches, manual motorstarters, a wide range of electronic relays and overload relays, together with an extended program of pilot devices.

Our offering

- ARC guard systems
- Contactors - Air break
- Manual motor starters
- Thermal overload relays
- Electronic overload relays
- Soft starters
- Pilot devices - push buttons, pilot lights with integrated LED, emergency stops, selector switches illuminated push buttons.
- Electronic relays and controls
- Timers
- Measuring and monitoring relays
- Power Supplies
- UMC 100
- Signal converters - analog / serial
- Plug in Relays
- Motor controllers - intelligent motors management systems
- Sensors - hall effect current / voltage
- Limit switches
- Terminal blocks - Entrelec
- Pre-wiring system for PLC's - Interfast

Standard control relays: AC operated

Control Circuit	No: of Contacts	Contact Configuration		Type Code Reference	Order Code	M.R.P
		NO	NC			
AC	4	2	2	N22E **	1SBH 141 001 R□□22	975
	4	3	1	N31E **	1SBH 141 001 R□□31	975
	4	4	0	N40E **	1SBH 141 001 R□□40	975

Refer coil voltage & codes mentioned below.

Standard control relays: DC operated

Control Circuit	No: of Contacts	Contact Configuration		Type Code Reference	Order Code	M.R.P
		NO	NC			
DC	4	2	2	NL22E **	1SBH 143001R□□22	1,380
	4	3	1	NL31E **	1SBH 143001R□□31	1,380
	4	4	0	NL40E **	1SBH 143001R□□40	1,380

Refer coil voltage & codes mentioned below.

Coil voltages & codes for NL (DC operated)

V dc	Code
12	80
24	81
42	82
48	83
50	21
60	84
75	85
110	86
125	87
220	88
240	89
250	38

Coil voltages and codes: N range

Voltage ⎓ V - 50Hz	Voltage ⎓ V - 60Hz	Code □□
24	24	8 1
110	110 ... 120	8 4
220 ... 230	230 ... 240	8 0
230 ... 240	240 ... 260	8 8
400 ... 415	415 ... 440	8 6

3 pole contactors : AC operated

Contactors: 3-pole – AC Operated(50Hz)

AC1duty Amps	AC3 rating at 415V			Auxiliary Contacts		Type Code	Order Code	M.R.P
	Amps	hP	kW					
25	9	5.5	4	1NO	-	A09-30-10 **	1SBL 141 001 R□□10	855
25	9	5.5	4	-	1NC	A09-30-01 **	1SBL 141 001 R□□01	855
27	12	7.5	5.5	1NO	-	A12-30-10 **	1SBL 161 001 R□□10	970
27	12	7.5	5.5	-	1NC	A12-30-01 **	1SBL 161 001 R□□01	970
30	17	10	7.5	1NO	-	A16-30-10 **	1SBL 181 001 R□□10	1060
30	17	10	7.5	-	1NC	A16-30-01 **	1SBL 181 001 R□□01	1060
45	26	15	11	1NO	-	A26-30-10 **	1SBL 241 001 R□□10	1530
45	26	15	11	-	1NC	A26-30-01 **	1SBL 241 001 R□□01	1530
55	32	20	15	1NO	-	A30-30-10 **	1SBL 281 001 R□□10	3010
55	32	20	15	-	1NC	A30-30-01 **	1SBL 281 001 R□□01	3010
60	37	25	18.5	1NO	-	A40-30-10 **	1SBL 321 001 R□□10	4840
60	37	25	18.5	-	1NC	A40-30-01 **	1SBL 321 001 R□□01	4840
100	50	34	25	-	-	A50-30-00 **	1SBL 351 001 R□□00	5900
115	65	50	37	-	-	A63-30-00 **	1SBL 371 001 R□□00	8250
125	75	54	40	-	-	A75-30-00 **	1SBL 411 001 R□□00	10110
145	96	60	55	1NO	1NC	A95-30-11**	1SFL 431 001 R□□11	12500
160	110	75	59	1NO	1NC	A110-30-11**	1SFL 451 001 R□□11	15000
250	145	80	75	1NO	1NC	A145-30-11**	1SFL 471 001 R□□11	20000
275	185	100	90	1NO	1NC	A185-30-11**	1SFL 491 001 R□□11	25750
350	210	125	110	1NO	1NC	A210-30-11**	1SFL 511 001 R□□11	28000
400	260	150	140	1NO	1NC	A260-30-11**	1SFL 531 001 R□□11	33000
500	300	190	160	1NO	1NC	A300-30-11**	1SFL 551 001 R□□11	38750
600	400	220	220	1NO	1NC	AF400-30-11**	1SFL 577 001 R□□11	50000
700	460	300	250	1NO	1NC	AF460-30-11**	1SFL 597 001 R□□11	69000
800	580	430	355	1NO	1NC	AF580-30-11**	1SFL 617 001 R□□11	85000
1050	750	545	425	1NO	1NC	AF750-30-11**	1SFL 637 001 R□□11	125000

Complete the contactor type code by replacing ** with desired coil voltage AF contactors have advanced electronic coil interface with wideband AC/DC coil

Note: For Wide band coil of G type please add Rs. 110/- on A range contactor (A9...A40)

Coil voltages and codes: A 09 ... A 300, range

Voltage ⎓ V - 50Hz	Voltage ⎓ V - 60Hz	Code □□
24	24	8 1
110	110 ... 120	8 4
220 ... 230	230 ... 240	8 0
230 ... 240	240 ... 260	8 8
400 ... 415	415 ... 440	8 6

Coil voltages and codes: AF 400 ... AF 750

Voltage ⎓ V - 50/60Hz	Voltage ⎓ V d.c.	Code □□
-	24 ... 60	6 8
48 ... 130	48 ... 130	6 9
100 ... 250	100 ... 250	7 0
250 ... 500	250 ... 500	7 1

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole

Note: For Non standard coil voltage, other than this please contact us for pricing

4 Pole contactors : AC operated

Contactors: 4-pole - AC Operated (4 NO Main Contacts)

Rating at 415V AC1 Amps	Main Contact Arrangement		Auxiliary Contacts		Type Code Reference	Order Code	M.R.P
25	4NO	-	-	-	A09-40-00 **	1SBL 141 201 R□□00	1320
30	4NO	-	-	-	A16-40-00 **	1SBL 181 201 R□□00	1375
45	4NO	-	-	-	A26-40-00 **	1SBL 241 201 R□□00	2310
70	4NO	-	-	-	A45-40-00**	1SBL 331 201 R□□00	5700
100	4NO	-	-	-	A50-40-00**	1SBL 351 201 R□□00	7600
125	4NO	-	-	-	A75-40-00**	1SBL 411 201 R□□00	11000
200A	4NO	-	1NO	1NC	EK110-40-21 **	SK 824 440 - □□	23540
250A	4NO	-	1NO	1NC	EK150-40-21 **	SK 824 441 - □□	27170
300A	4NO	-	1NO	1NC	EK175-40-21 **	SK 825 440 - □□	35815
350A	4NO	-	1NO	1NC	EK210-40-21 **	SK 825 441 - □□	44330
550A	4NO	-	1NO	1NC	EK370-40-21 **	SK 827 040 - □□	70950
800A	4NO	-	1NO	1NC	EK550-40-21 **	SK 827 041 - □□	94270
1000A	4NO	-	1NO	1NC	EK1000-40-21 **	SK 827 044 - □□	137500

Complete the contactor type code by replacing ** with desired coil voltage

Contactors: 4-pole - AC Operated (2NO+2NC power contacts)

Rating at 415V AC1 Amps	Main Contact Arrangement		Auxiliary Contacts		Type Code Reference	Order Code	M.R.P
25	2NO	2NC	-	-	A09-22-00 **	1SBL 141 501 R□□00	1320
30	2NO	2NC	-	-	A16-22-00 **	1SBL 181 501 R□□00	1770
45	2NO	2NC	-	-	A26-22-00 **	1SBL 241 501 R□□00	3000
70	2NO	2NC	-	-	A45-22-00**	1SBL 331 501 R□□00	8450
125	2NO	2NC	-	-	A75-22-00**	1SBL 411 501 R□□00	11390

Note: For Wide band coil of G type please add Rs. 110/- on A range contactor (A9...A40)

Multi frequency coils: EK 110 ... EK 210

Voltage ⎓ V - 40 ... 400Hz	Code □□
100 ... 120	E F
220 ... 230	E L
230 ... 240	E M
400 ... 415	E R

Coil voltages and codes: EK 110 ... EK 1000

Voltage ⎓ V - 50Hz	Voltage ⎓ V - 60Hz	Code □□
-	110	A E
110	120	A F
220 ... 230	*	A L
230 ... 240	-	A M
400 ... 415	-	A R

Other voltages: page 0/1

Dual frequency coils (1): EK 370 ... EK 1000

Voltage ⎓ V - 50Hz	Voltage ⎓ V - 60Hz	Code □□
110	110 ... 120	E F
220	220 ... 240	E L
220 ... 230	230 ... 255	E M

(1) Two auxiliary contact blocks maximum per contactor, ambient temperature < 55 C and mounting positions 2 and 6 excluded.

Note: For Non standard coil voltage, other than this please contact us for pricing

Control relay : Wide band AC / DC operated

NF Control Relays
Wide band AC / DC Operated - with Screw Terminals

Description

- **NF contactor** relays include an electronic coil interface accepting a wide control voltage Uc min. ... Uc max. only four coils cover control voltages between 24...500 V 50/60 Hz or 20...500 V DC
- **NF contactor** relays can manage large control voltage variations. One coil (e.g. 100...250 V 50/60 Hz - DC) can be used for different control voltages used worldwide without any coil change.
- **NFZ contactor** relays equipped with a Z coil type allow direct control by 24 V DC 500 mA PLC-output and obtain a reduced holding coil consumption.
- **NF contactor** relays have built-in surge protection and do not require additional surge suppressors.

Control Relay : Wide band AC/DC operated with low power consumption & inbuilt surge suppressor

Control Circuit	No.of. contacts	Contact Configuration		Control voltage Uc min ..Uc max V50/60 Hz V DC	Type Code Reference	Order Code	M.R.P
AC/DC	4	2NO	2NC	24...60 20...60	NF22E-11	1SBH 137 001 R1122	1660
	4	2NO	2NC	48...130 48...130	NF22E-12	1SBH 137 001 R1222	1660
	4	2NO	2NC	100...250 100...250	NF22E-13	1SBH 137 001 R1322	1660
	4	2NO	2NC	250...500 250...500	NF22E-14	1SBH 137 001 R1422	1660
	4	3NO	1NC	24...60 20...60	NF31E-11	1SBH 137 001 R1131	1660
	4	3NO	1NC	48...130 48...130	NF31E-12	1SBH 137 001 R1231	1660
	4	3NO	1NC	100...250 100...250	NF31E-13	1SBH 137 001 R1331	1660
	4	3NO	1NC	250...500 250...500	NF31E-14	1SBH 137 001 R1431	1660
	4	4NO	-	24...60 20...60	NF40E-11	1SBH 137 001 R1140	1660
	4	4NO	-	48...130 48...130	NF40E-12	1SBH 137 001 R1240	1660
	4	4NO	-	100...250 100...250	NF40E-13	1SBH 137 001 R1340	1660
	4	4NO	-	250...500 250...500	NF40E-14	1SBH 137 001 R1440	1660

3 Pole contactors : Wide band AC / DC operated

Description

- AF09...AF38 contactor include an electronic coil interface accepting a wide control voltage U min. ... U max. c c only four coils cover control voltages between 24...500 V 50/60 Hz or 20...500 V DC
- AF contactor can manage large control voltage variations. One coil (e.g. 100...250 V 50 or 60 Hz - DC) can be used for different control voltages used worldwide without any coil change.
- AF...Z contactor equipped with a Z coil type allow direct control by 24 V DC 500 mA PLC-output and obtain a reduced holding coil consumption.
- AF contactor have built-in surge protection and do not require additional surge suppressors.

3 pole contactors : Wide band AC / DC operated

AC1 duty Amps	AC3 rating at 415V			Auxiliary Contacts		Control Voltage 50/60 Hz	Control Voltage V DC	Type Code	Order code	M.R.P
	Amps	hP	kW							
25	9	5.5	4	1NO	-	24-60	20-60	AF09-30-10-11	1SBL 137 001 R1110	1475
					1NC	24-60	20-60	AF09-30-01-11	1SBL 137 001 R1101	1475
				1NO	-	48-130	48-130	AF09-30-10-12	1SBL 137 001 R1210	1475
					1NC	48-130	48-130	AF09-30-01-12	1SBL 137 001 R1201	1475
				1NO	-	100-250	100-250	AF09-30-10-13	1SBL 137 001 R1310	1475
					1NC	100-250	100-250	AF09-30-01-13	1SBL 137 001 R1301	1475
				1NO	-	250-500	250-500	AF09-30-10-14	1SBL 137 001 R1410	1475
					1NC	250-500	250-500	AF09-30-01-14	1SBL 137 001 R1401	1475
28	12	7.5	5.5	1NO	-	24-60	20-60	AF12-30-10-11	1SBL 157 001 R1110	1740
					1NC	24-60	20-60	AF12-30-01-11	1SBL 157 001 R1101	1740
				1NO	-	48-130	48-130	AF12-30-10-12	1SBL 157 001 R1210	1740
					1NC	48-130	48-130	AF12-30-01-12	1SBL 157 001 R1201	1740
				1NO	-	100-250	100-250	AF12-30-10-13	1SBL 157 001 R1310	1740
					1NC	100-250	100-250	AF12-30-01-13	1SBL 157 001 R1301	1740
				1NO	-	250-500	250-500	AF12-30-10-14	1SBL 157 001 R1410	1740
					1NC	250-500	250-500	AF12-30-01-14	1SBL 157 001 R1401	1740
30	18	9	7.5	1NO	-	24-60	20-60	AF16-30-10-11	1SBL 177 001 R1110	1805
					1NC	24-60	20-60	AF16-30-01-11	1SBL 177 001 R1101	1805
				1NO	-	48-130	48-130	AF16-30-10-12	1SBL 177 001 R1210	1805
					1NC	48-130	48-130	AF16-30-01-12	1SBL 177 001 R1201	1805
				1NO	-	100-250	100-250	AF16-30-10-13	1SBL 177 001 R1310	1805
					1NC	100-250	100-250	AF16-30-01-13	1SBL 177 001 R1301	1805
				1NO	-	250-500	250-500	AF16-30-10-14	1SBL 177 001 R1410	1805
					1NC	250-500	250-500	AF16-30-01-14	1SBL 177 001 R1401	1805
45	26	15	11	-	-	24-60	20-60	AF26-30-00-11	1SBL 237 001 R1100	2615
				-	-	48-130	48-130	AF26-30-00-12	1SBL 237 001 R1200	2615
				-	-	100-250	100-250	AF26-30-00-13	1SBL 237 001 R1300	2615
				-	-	250-500	250-500	AF26-30-00-14	1SBL 237 001 R1400	2615
50	35	20	18			24-60	20-60	AF30-30-00-11	1SBL 277 001 R1100	5345
				-	-	48-130	48-130	AF30-30-00-12	1SBL 277 001 R1200	5345
				-	-	100-250	100-250	AF30-30-00-13	1SBL 277 001 R1300	5345
				-	-	250-500	250-500	AF30-30-00-14	1SBL 277 001 R1400	5345
50	38	25	18.5	-	-	24-60	20-60	AF38-30-00-11	1SBL 297 001 R1100	6470
				-	-	48-130	48-130	AF38-30-00-12	1SBL 297 001 R1200	6470
				-	-	100-250	100-250	AF38-30-00-13	1SBL 297 001 R1300	6470
				-	-	250-500	250-500	AF38-30-00-14	1SBL 297 001 R1400	6470
100	50	34	25	-	-			AF50-30-00 **	1SBL 357 001 R□□00	8145
115	65	50	37	-	-			AF63-30-00 **	1SBL 377 001 R□□00	8840
125	75	54	40	-	-			AF75-30-00 **	1SBL 417 001 R□□00	10660
145	96	60	55	1NO	1NC			AF95-30-11**	1SFL 437 001 R□□11	16585
160	110	75	59	1NO	1NC			AF110-30-11**	1SFL 457 001 R□□11	18810
250	145	80	75	1NO	1NC			AF145-30-11**	1SFL 477 001 R□□11	25825
275	185	100	90	1NO	1NC			AF185-30-11**	1SFL 497 001 R□□11	32630
350	210	125	110	1NO	1NC			AF210-30-11**	1SFL 517 001 R□□11	39850
400	260	150	140	1NO	1NC			AF260-30-11**	1SFL 537 001 R□□11	44415
500	300	190	160	1NO	1NC			AF300-30-11**	1SFL 557 001 R□□11	47305
600	400	220	220	1NO	1NC			AF400-30-11**	1SFL 577 001 R□□11	50000
700	460	300	250	1NO	1NC			AF460-30-11**	1SFL 597 001 R□□11	69000
800	580	430	355	1NO	1NC			AF580-30-11**	1SFL 617 001 R□□11	85000
1050	750	545	425	1NO	1NC			AF750-30-11**	1SFL 637 001 R□□11	125000

Complete the contactor type code by replacing ** with desired coil voltage Contactors with advanced electronic coil interface with wideband AC/DC coil

4 pole contactors : Wide band AC / DC operated

Contactors: 4 pole – AC / DC Operated

Rating at 415V AC1 Amps	Main Contact Arrangement		Auxiliary Contacts		Control Voltage Uc min... Uc max		Type Code Reference	Order code	M.R.P
					V 50/60 Hz	V DC			
25	4NO	-	-	-	24-60	20-60	AF09-40-00-11	1SBL 137 201 R1100	2160
		-	-	-	48-130	48-130	AF09-40-00-12	1SBL 137 201 R1200	2160
		-	-	-	100-250	100-250	AF09-40-00-13	1SBL 137 201 R1300	2160
		-	-	-	250-500	250-500	AF09-40-00-14	1SBL 137 201 R1400	2160
30	4NO	-	-	-	24-60	20-60	AF16-40-00-11	1SBL 177 201 R1100	2595
		-	-	-	48-130	48-130	AF16-40-00-12	1SBL 177 201 R1200	2595
		-	-	-	100-250	100-250	AF16-40-00-13	1SBL 177 201 R1300	2595
		-	-	-	250-500	250-500	AF16-40-00-14	1SBL 177 201 R1400	2595
45	4NO	-	-	-	24-60	20-60	AF26-40-00-11	1SBL 237 201 R1100	3510
		-	-	-	48-130	48-130	AF26-40-00-12	1SBL 237 201 R1200	3510
		-	-	-	100-250	100-250	AF26-40-00-13	1SBL 237 201 R1300	3510
		-	-	-	250-500	250-500	AF26-40-00-14	1SBL 237 201 R1400	3510
55	4NO	-	-	-	24-60	20-60	AF38-40-00-11	1SBL 297 201 R1100	5680
		-	-	-	48-130	48-130	AF38-40-00-12	1SBL 297 201 R1200	5680
		-	-	-	100-250	100-250	AF38-40-00-13	1SBL 297 201 R1300	5680
		-	-	-	250-500	250-500	AF38-40-00-14	1SBL 297 201 R1400	5680
70	4NO	-	-	-			AF45-40-00**	1SBL 337 201 R□□00	11645
100	4NO	-	-	-			AF50-40-00**	1SBL 357 201 R□□00	11790
125	4NO	-	-	-			AF75-40-00**	1SBL 417 201 R□□00	13060
200A	4NO	-	2NO	1NC			EK110-40-21**	SK 824 440- □□	24720
250A	4NO	-	2NO	1NC			EK150-40-21**	SK 824 441 - □□	28530
300A	4NO	-	2NO	1NC			EK175-40-21**	SK 825 440 - □□	37610
350A	4NO	-	2NO	1NC			EK210-40-21**	SK 825 441 - □□	46550
550A	4NO	-	2NO	1NC			EK370-40-21**	SK 827 040 - □□	74500
800A	4NO	-	2NO	1NC			EK550-40-21**	SK 827 041 - □□	99000
1000A	4NO	-	2NO	1NC			EK1000-40-21**	SK 827 044 - □□	144375

Complete the contactor type code by replacing ** with desired coil voltage
AL and EK contractors are DC operated only*

Coil voltages and codes: AF 45... AF 75

Voltage ⎓ V - 50/60Hz	Voltage ⎓ V d.c.	Code □□
-	20 ... 60	72(1)
48 ... 130	48 ... 130	70
100 ... 250	100 ... 250	69

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.

Note: For Non standard coil voltage, other than this please contact us for pricing

Coil voltages and codes: For EK contactors

Voltage ⎓ V d.c.	Code □□
12 (1)	D A
24	D B
48	D D
110	D E
220	D F

(1) Not fot EK 370 ... EK 1000 contactors

AL & TAL Contactors

AL.., TAL.. contactors are mainly used for controlling 3-phase motors and more generally for controlling power circuits both ac & dc. These contactors have a low power consumption for direct control from PLC outputs. Consequently they are perfectly adapted for all applications associated with PLC control.

low res

AL Contactors

AC 1 duty Amps	AC3 rating at 415V			Auxiliary contacts		Type code reference	Order Code	MRP
	Amps	hP	kW					
25	21	5	4	1NO	-	AL 9-30-10	1SBL 143 001 R□□10	1380
25	21	5	4	-	1NC	AL 9-30-01	1SBL 143 001 R□□01	1380
27	25	7.5	5.5	1NO	-	AL 12-30-10	1SBL 163 001 R□□10	1460
27	25	7.5	5.5	-	1NC	AL 12-30-01	1SBL 163 001 R□□01	1460
30	30	10	7.5	1NO	-	AL 16-30-10	1SBL 183 001 R□□10	1700
30	30	10	7.5	-	1NC	AL 16-30-01	1SBL 183 001 R□□01	1700
45	40	20	11	1NO	-	AL 26-30-10	1SBL 243 001 R□□10	2400
45	40	20	11	-	1NC	AL 26-30-01	1SBL 243 001 R□□01	2400
55	50	25	15	1NO	-	AL 30-30-10	1SBL 283 001 R□□10	5100
55	50	25	15	-	1NC	AL 30-30-01	1SBL 283 001 R□□01	5100
60	60	30	18.5	1NO	-	AL 40-30-10	1SBL 323 001 R□□10	5750
60	60	30	18.5	-	1NC	AL 40-30-01	1SBL 323 001 R□□01	5750

TAL Contactors

AC 1 duty Amps	AC3 rating at 415V			Auxiliary contacts		Type code reference	Order Code	MRP
	Amps	hP	kW					
25	21	5	4	1NO	-	TAL 9-30-10	1SBL 143 061 R□□10	1890
25	21	5	4	-	1NC	TAL 9-30-01	1SBL 143 061 R□□01	1890
27	25	7.5	5.5	1NO	-	TAL 12-30-10	1SBL 163 061 R□□10	1970
27	25	7.5	5.5	-	1NC	TAL 12-30-01	1SBL 163 061 R□□01	1970
30	30	10	7.5	1NO	-	TAL 16-30-10	1SBL 183 061 R□□10	2300
30	30	10	7.5	-	1NC	TAL 16-30-01	1SBL 183 061 R□□01	2300
45	40	20	11	1NO	-	TAL 26-30-10	1SBL 243 061 R□□10	3250
45	40	20	11	-	1NC	TAL 26-30-01	1SBL 243 061 R□□01	3250
55	50	25	15	1NO	-	TAL 30-30-10	1SBL 283 061 R□□10	7000
55	50	25	15	-	1NC	TAL 30-30-01	1SBL 283 061 R□□01	7000
60	60	30	18.5	1NO	-	TAL 40-30-10	1SBL 323 061 R□□10	7800
60	60	30	18.5	-	1NC	TAL 40-30-01	1SBL 323 061 R□□01	7800

Coil voltages and codes: AL

Voltage ⎓ V d.c.	Code □□
12	8 0
24	8 1
42	8 2
48	8 3
50	2 1
60	8 4
75	8 5
110	8 6
125	8 7
220	8 8
240	8 9
250	3 8

Coil voltages and codes: TAL

Voltage ⎓ V d.c.	Code □□
17...32	5 1
25...45	5 2
36...65	5 4
42...78	5 8
50...90	5 5
77...143	6 2
90...150	6 6
152...264	6 8

Other voltages: please consult us.

Installation contactors

EN/ESB20	EN/ESB24	EN/ESB40	EN/ESB63
Switching heatings and resistors, AC-1 / AC-7a			
Rated operational current I_e (NO)			
20 A	24 A	40 A	63 A
Rated operational current I_e (NC)			
20 A	24 A	30 A	30 A
Rated operational power, 1-phase at 230 V			
4 kW	5.3 kW	8.8 kW	13.8 kW
Rated operational power, 3-phase at 400 V			
	16 kW	26 kW	41 kW
Switching motors, AC-3 / AC-7b			
Rated operational current I_e (NO)			
9 A	9 A	22 A	30 A
Rated operational current I_e (NC)			
9 A	6 A		
Rated operational power, 1-phase at 230 V			
1.3 kW	2.2 kW	5.5 kW	8 kW
Rated operational power, 3-phase at 400 V			
	4 kW	11 kW	15 kW
Module width			
18 mm	36 mm	54 mm	54 mm

Contacts	Type	Order No.	M.R.P.
20 A 2-pole (No aux.-contact block possible)			
2NO	ESB 20-20 24 V 50/60 Hz	GHE3 211 102 R0001	1820
2NO	ESB 20-20 230 V 50/60 Hz	GHE3 211 102 R0006	1820
2NC	ESB 20-02 24 V 50/60 Hz	GHE3 211 202 R0001	1935
2NC	ESB 20-02 230 V 50/60 Hz	GHE3 211 202 R0006	1935
1NO, 1NC	ESB 20-11 24 V 50/60 Hz	GHE3 211 302 R0001	1820
1NO, 1NC	ESB 20-11 230 V 50/60 Hz	GHE3 211 302 R0006	1820
24 A 2-pole (1 aux.-contact block possible)			
2NO	ESB 24-20 24 V AC/DC	GHE3 291 402 R0006	1820
2NO	ESB 24-20 24 V AC/DC	GHE3 291 402 R0001	1820
24 A 4-pole (1 aux.-contact block possible			
4NO	ESB 24-40 24 V AC/DC	GHE3 291 102 R0001	2155
4NO	ESB 24-40 230-240 V AC/DC	GHE3 291 102 R0006	2155
2N0, 2NC	ESB 24-22 24 V AC/DC	GHE3 291 302 R0001	2470
2N0, 2NC	ESB 24-22 230-240 V AC/DC	GHE3 291 302 R0006	2470
40 A 2-/3-/4-pole (1 aux.-contact block possible)			
2NO	ESB 40-20 24 V AC/DC	GHE3 491 402 R0001	4275
2NO	ESB 40-20 230 V AC/DC	GHE3 491 402 R0006	4275
3NO	ESB 40-30 24 V AC/DC	GHE3 491 502 R0001	4285
3NO	ESB 40-30 230 V AC/DC	GHE3 491 502 R0006	4200
4NO	ESB 40-40 24 V AC/DC	GHE3 491 102 R0001	4610
4NO	ESB 40-40 230 V AC/DC	GHE3 491 102 R0006	4500
2N0, 2NC	ESB 40-22 24 V AC/DC	GHE3 491 302 R0001	4820
2N0, 2NC	ESB 40-22 230 V AC/DC	GHE3 491 302 R0006	4715
63 A 2-/3-/4-pole (1 aux.-contact block possible)			
2NO	ESB 63-20 24 V AC/DC	GHE3 691 402 R0001	4820
2NO	ESB 63-20 230 V AC/DC	GHE3 691 402 R0006	4715
3NO	ESB 63-30 230 V AC/DC	GHE3 691 502 R0006	5145
4NO	ESB 63-40 24 V AC/DC	GHE3 691 102 R0001	5680
4NO	ESB 63-40 230 V AC/DC	GHE3 691 102 R0006	5570

Installation contactors

EN-Types - with benefits for service
EN-Types have an integrated 3-position switch for manual and automatic operation.

Functions:
- Switch in position “AUTO” : standard control
- Switch in position “O” : Supply to coil interrupted
- Switch in position “I” : Manually switched on (a trigger signal at the coil terminal initiates the switch moving into “AUTO” position)

Contacts	Type	Order No.	M.R.P.
20 A 2-pole (No aux.-contact block possible)			
2NO	EN 20-20 24 V 50 Hz	GHE3 221 101 R0001	3215
2NO	EN 20-20 230 V 50 Hz	GHE3 221 101 R0006	3215
24 A 3-pole (1 aux.-contact block possible)			
3NO	EN 24-30 230-240 V AC/DC	GHE3 261 501 R0006	8035
24 A 4-pole (1 aux.-contact block possible)			
4NO	EN 24-40 24 V AC/DC	GHE3 261 101 R0001	8785
4NO	EN 24-40 230-240 V AC/DC	GHE3 261 101 R0006	8570
40 A 3-pole (1 aux.-contact block possible)			
3NO	EN 40-30 230 V AC/DC	GHE3 421 501 R0006	8145
40 A 4-pole (1 aux.-contact block possible)			
4NO	EN 40-40 24 V AC/DC	GHE3 421 101 R0001	8250
4NO	EN 40-40 230 V AC/DC	GHE3 421 101 R0006	8165
Accessories			
2NO	EH 04-20, Aux.-contact block	GHE3 401 321 R0001	870
1NO, 1NC	EH 04-11, Aux.-contact block	GHE3 401 321 R0002	870
distance pcs	ESB-DIS Spacer	GHE3 201 902 R0001	80
Seal	ESBPLK24	GHE3 201 903 R0001	70

Contactors for special application - capacitors switching

Contactors for capacitor switching: 3 pole – AC operated:

kVAR Rating at 415V	Peak inrush current	Auxiliary Contacts		Type Code reference	Order Code	M.R.P
		NO	NC			
Type UA..RA with in-built damping resistors:						
12.5	Unlimited	1NO	--	UA16-30-10RA **	1SBL 181 024 R□□10	2800
22	Unlimited	1NO	--	UA26-30-10RA **	1SBL 241 024 R□□10	3800
30	Unlimited	1NO	--	UA30-30-10RA**	1SBL 281 024 R□□10	4300
40	Unlimited	--	--	UA50-30-00RA	1SBL 351 024 R□□00	12000
50	Unlimited	--	--	UA63-30-00RA**	1SBL 371 024 R□□00	11300
60	Unlimited	--	--	UA75-30-00RA**	1SBL 411 024 R□□00	14000
70	Unlimited	--	--	UA95-30-00RA**	1SFL 431 024 R□□00	15700
80	Unlimited	--	--	UA110-30-00RA**	1SFL 451 024 R□□00	17000

Type UA..RA with in-built damping resistors
Complete the contactor type code by replacing ** with desired coil voltage
Price for UAF 50-30 - 00RA..... UAF110-30-00RA (with wide band electronic coil 100...250V AC/DC) on request

Coil voltages and codes UA...RA

Voltage ⎓ V - 50Hz	Voltage ⎓ V - 60Hz	Code □□
24	24	8 1
110	110 ... 120	8 4
220 ... 230	230 ... 240	8 0
230 ... 240	240 ... 260	8 8
400 ... 415	415 ... 440	8 6

Coil voltages and codes: GA 75

Voltage ⎓ V - 50Hz	Voltage ⎓ V - 60Hz	Code □□
24	24	8 1
110	110 ... 120	8 4
220 ... 230	230 ... 240	8 0
230 ... 240	240 ... 260	8 8
400 ... 415	415 ... 440	8 6

Coil voltages and codes: GAE 75

Voltage ⎓ V d.c.	Code □□
12	8 0
24	8 2
42	8 1
110	8 6
220	8 8
240	8 9

Note: For Non standard coil voltage, other than this please contact us for pricing

Contactors for DC Circuit Switching: AC/DC operated

Coil	Current Ratings at 440V DC			Type Code reference	Order Code	M.R.P
	DC-1	DC-3	DC-5			
AC	100A	85A	50A	GA75-10-00 **	1SBL 411 025 R□□11	23500
DC	100A	85A	50A	GAE75-10-00 **	1SBL 419 025 R□□11	25000

Complete the contactor type code by replacing ** with desired coil voltage

Mini contactors

Mini contactors with screw connection: 3 pole - AC operated

AC1 duty Amps	AC3 rating at 415V			Auxiliary Contacts		Type Code Reference	Order Code	Box Packing quantity	M.R.P
	Amps	hP	kW						
16A	9	5.5	4	1NO	-	B06-30-10 **	GJL 121 1001 R□10□	10	885
16A	9	5.5	4	-	1NC	B06-30-01 **	GJL 121 1001 R□01□	10	885
20A	12	7.5	5.5	1NO	-	B07-30-10 **	GJL 131 1001 R□10□	10	990
20A	12	7.5	5.5	-	1NC	B07-30-01 **	GJL 131 1001 R□01□	10	990

Complete the contactor type code by replacing ** with desired coil voltage

Mini contactors with screw connection: 3 pole - DC operated

AC1 duty Amps	AC3 rating at 415V			Auxiliary Contacts		Type Code Reference	Order Code	Box Packing quantity	M.R.P
	Amps	hP	kW						
16A	9	5.5	4	1NO	-	BC6-30-10 **	GJL 121 3001 R□10□	10	1290
16A	9	5.5	4	-	1NC	BC6-30-01 **	GJL 121 3001 R□01□	10	1290
20A	12	7.5	5.5	1NO	-	BC7-30-10 **	GJL 131 3001 R□10□	10	1420
20A	12	7.5	5.5	-	1NC	BC7-30-01 **	GJL 131 3001 R□01□	10	1420

Complete the contactor type code by replacing ** with desired coil voltage

Mini relays with screw connection

Control Circuit	No: of Contacts	Contact Configuration		Type Code Reference	Order Code	Box Packing quantity	M.R.P
		NO	NC				
AC	4	2NO	2NC	K6-22Z**	GJH 121 1001 R□22□	10	1105
	4	3NO	1NC	K6-31Z **	GJH 121 1001 R□31□	10	1105
	4	4NO	-	K6-40E **	GJH 121 1001 R□40□	10	1105
DC	4	2NO	2NC	KC6-22Z**	GJH 121 3001 R□□22	10	1325
	4	3NO	1NC	KC6-31Z **	GJH 121 3001 R□□31	10	1325
	4	4NO	-	KC6-40E **	GJH 121 3001 R□□40	10	1325

Complete the contactor type code by replacing ** with desired coil voltage

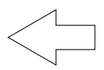
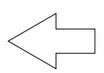
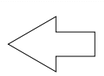
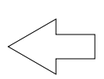
Coil voltage for mini contactors

AC		DC	
40-450Hz	Code number	DC V	Code number
24	0 ... 1	24	0 ... 1
48	0 ... 3	110 ... 125	0 ... 4
110 ... 127	8 ... 4	220 ... 240	0 ... 5
220 ... 240	8 ... 0		
380 ... 415	8 ... 5		

Note: For Non standard coil voltage, other than this please contact us for pricing

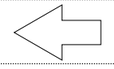
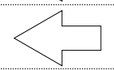
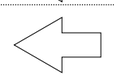
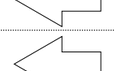
Accessories for contactors

Auxiliary contact block for A range

Description	Mounting on Contactors		Contact Configuration		Type Code Reference	Order Code	M.R.P
			NO	NC			
Front mounted single pole add-on blocks	A9….A110 AL9…AL40, TAL9…TAL40 AE45…AE110, TAE45…TAE110 AF45…AF110 N,NL &UA		1NO	-	CA5-10	1SBN 010 010 R1010	150
			-	1NC	CA5-01	1SBN 010 010 R1001	150
Side mounted 2 pole add-on blocks	A9….A75 AL9…AL40, TAL9…TAL40 AE45…AE75, TAE45…TAE75 AF45…AF75 N,NL & UA 16..75		1NO	1NC	CAL5-11	1SBN 010 020 R1011	450
Side mounted 2 pole add-on blocks	A95…A300,AE95… AE110 TAE95…TAE110, AF95…AF110 UA95…UA110, AF145… AF2050		1NO	1NC	CAL18-11	1SFN 010 720 R1011	540
Side mounted 2 pole add-on blocks	A145…A300 AF145…AF2050		1NO	1NC	CAL18-11B	1SFN 010 720 R3311	540

* Please refer technical catalogue for proper selection.

Auxiliary contact block for AF / NF range

Description	Mounting on Contactors		Contact Configuration		Type Code Reference	Order Code	M.R.P
			NO	NC			
Front mounted single pole add-on blocks	AF09….AF38 / NF		1NO	-	CA4-10	1SBN 010 110R1010	170
			-	1NC	CA4-01	1SBN 010 110R1001	170
Front mounted 4 pole add-on blocks	AF09….AF38 / NF		4NO	-	CA4-40E	1SBN 010 140 R1040	590
			4NO	-	CA4-40U	1SBN 010 140 R1340	590
Front mounted 4 pole add-on blocks	AF09….AF38 / NF		3NO	1NC	CA4-31E	1SBN 010 140 R1031	590
			3NO	1NC	CA4-31U	1SBN 010 140 R1331	590
			3NO	1NC	CA4-31M	1SBN 010 140 R1131	590
Front mounted 4 pole add-on blocks	AF09….AF38 / NF		2NO	2NC	CA4-22E	1SBN 010 140 R1022	590
			2NO	2NC	CA4-22U	1SBN 010 140 R1322	590
			2NO	2NC	CA4-22M	1SBN 010 140 R1122	590
Front mounted 4 pole add-on blocks	AF09….AF38 / NF		-	4NC	CA4-04E	1SBN 010 140 R1004	590
			-	4NC	CA4-04M	1SBN 010 140 R1104	590
Side mounted 2 pole add-on blocks	AF09….AF38 / NF		1NO	1NC	CA4-11	1SBN 010 120 R1011	580

Auxiliary contact blocks for EK Range of contactors:

Description	Mounting on Contactors	Contact Configuration		Type Code Reference	Order Code	M.R.P
		NO	NC			
Side mounting Two Pole Auxiliary contact blocks	EK110 . . . .EK1000	1NO	1NC	CAL16-11A	SK829002-A	550
		1NO	1NC	CAL16-11B	SK829002-B	550
		1NO	1NC	CAL16-11C	SK829002-C	550
		1NO	1NC	CAL16-11D	SK829002-D	550

Accessories for contactors

Adapter plates

From old contactor	To new contactor	Type	Order Code	M.R.P
EH65,75,80,EG80	A95,A110	PR 110-1	1SFN 094 500 R1000	1050
EH100,EH145	A110,A145	PR 145-1	1SFN 094 700 R1000	1070
EH150,160,175,210,EG160	A185,A210	PR 210-1	1SFN 094 900 R1000	1160
EH250,260&300	A210...A300	PR 300-1	1SFN 095 300 R1000	1550
EH370,EH550,EG315	AF400...AF580	PR 460-1	1SFN 095 700 R1000	2375
EH700,EH800	AF750	PR 750-1	1SFN 096 100 R1000	2760

Surge suppressors

Description	For contactor types	Voltage Range	Type Code reference	Order Code	M.R.P
For suppression of disturbances caused by switching of DC coils on electronic circuits	EK110.....EK210	24...48V/AC	RC-EH 300/48	SK 829 007-A	2430
		110...415V/AC	RC-EH 300/415	SK 829 007-B	2430
	EK370.....EK1000	48...110V/AC	RC-EH 800/110	SK 829 007-C	3200
		220...600V/AC	RC-EH 800/600	SK 829 007-D	3650

Surge suppressors

For contactor types	Voltage Range	Type Code reference	Order Code	M.R.P
AL9...AL40, AL9Z...AL16Z AE45...AE110, TAL9..TAL40 TAE45...TAE110 NL/NLZ/TNL	12...32 DC	RT 5/32	1SBN 050 020 R1000	605
	25...65 DC	RT 5/65	1SBN 050 020 R1001	605
	50...90 DC	RT 5/90	1SBN 050 020 R1002	605
	77...150 DC	RT 5/150	1SBN 050 020 R1003	605
	150...264 DC	RT5/264	1SBN 050 020 R1004	605
A9...A110, AL9...AL40, AL9Z...AL16Z, AE45...AE10,TAL9...TAL40, TAE45... TAE110, N/NL/NLZ/TNL	24...50V AC/DC	RV 5/50	1SBN 050 010 R1000	605
	50...133V AC/DC	RV 5/133	1SBN 050 010 R1001	605
	110...250V AC/DC	RV 5/250	1SBN 050 010 R1002	605
	250...440V AC/DC	RV 5/440	1SBN 050 010 R1003	605
A9....A40 , N	24...50V AC	RC 5-1/50	1SBN 050 100 R1000	605
	50...133V AC	RC 5-1/133	1SBN 050 100 R1001	605
	110...250V AC	RC 5-1/250	1SBN 050 100 R1002	605
	250...440V AC	RC 5-1/440	1SBN 050 100 R1003	605
A45...A110	24...50V AC	RC 5-2/50	1SBN 050 200 R1000	605
	50...133V AC	RC 5-2/133	1SBN 050 200 R1001	605
	110...250V AC	RC 5-2/250	1SBN 050 200 R1002	605
	250...440V AC	RC 5-2/440	1SBN 050 200 R1003	605
A145 -- - A300	250....440	RC5-3/440	1SFN050300R1003	1500

Mechanical interlocks

For contactor types	Description	Type Code reference	Order Code	M.R.P
A9..A40, AL9..AL40,	Horizontal Mechanical Interlock	VM 5-1	1SBN 030 100 R1000	430
A9..A40, AL9..AL40,	Horizontal Mechanical & Electrical Interlock with 2NC contacts	VE 5-1	1SBN 030 110 R1000	640
A45..A75, A95...A110	Horizontal Mechanical & Electrical Interlock with 2NC contacts	VE 5-2	1SBN 030 210 R1000	1310
A95...A185, A210...A300	Horizontal with 2NC contacts	VM 300H	1SFN 034 700 R1000	2150
AF400...AF460	Horizontal Mechanical Interlock	VM 300/460H	1SFN 035 100 R1000	2835
AF400...AF460, AF580...AF1250	Horizontal Mechanical Interlock	VM 750H	1SFN 035 700 R1000	3150
AF1350..AF1650	Horizontal Mechanical Interlock	VM 1650H	1SFN 036 503 R1000	13860
EK110...EK150	Horizontal Mechanical Interlock	VH145	SK 829 071-A	3780
EK175...EK210	Horizontal Mechanical Interlock	VH300	SK 829 071-B	4360
EK370...EK1000	Horizontal Mechanical Interlock	VH800	SK 829 070-F	Upon request
AF09...AF38	Horizontal Mechnical Interlock	VM 4	1SBN 030 105 T1000	525
AF09...AF38	Horizontal Mechnical & Electrical Interlock	VEM 4	1SBN 030 111 R1000	900

Note: Please refer technical catalogue for proper selection.

Spares for contactors

Spare coils for A range

For contactor types	Type Code Reference	Order Code	M.R.P
N, A9.....A16, UA16..RA	ZA16 **	1SBN 151 410 R□□06	500
A26..A40;UA26..UA30 RA	ZA40 **	1SBN 152 410 R□□06	560
A45..A75;UA50..UA75 RA	ZA75 **	1SBN 153 510 R□□06	1735
A95..A110; UA95..UA110 RA	ZA110 **	1SFN 154 310 R□□06	2220
A145...A185	ZA185 **	1SFN 154 710 R□□06	3565
A210...A300	ZA300 **	1SFN 155 110 R□□06	3900

Spare coils for AF range

For contactor types	Type Code Reference	Order Code	M.R.P
AF45...AF75	ZAF75	1SBN 153 570 R□□06	4790
AF95...AF110	ZAF110	1SFN 153 370 R□□06	8350
AF145...AF185	ZAF185	1SFN 154 770 R□□06	9800
AF210,AF260 &AF300	ZAF300	1SFN 155 170 R□□06	12360
AF460...AF460	ZAF460**	1SFN 155 770 R□□06	14360
AF580...AF750**	ZAF750**	1SFN 156 170 R□□06	19260

Coil voltages & codes

N range, A09.....A300, UA....RA		
Voltage V-50 Hz	Voltage V-60 Hz	Code
24	24	81
110	110....120	84
220....230	230....240	80
230....240	240....260	88
400....415	415....440	86

AF45...AF300		
Voltage V-50/60 Hz	Voltage V..dc	Code
	20....60	72
48....130	48....130	69
100....250	100....250	70

AF400...AF750		
Voltage V-50/60 Hz	Voltage V..dc	Code
	24....60	68
48....130	48....130	69
100....250	100....250	70
250....500	250....500	71

Spare coils for 4 pole contactors AC operated:

Description	For contactor types	Type Code Reference	Order Code	M.R.P
Standard AC coils suitable for EK contactors.	EK110.....EK150	KH210 **	SK 825 400 - □□	Upon Request
	EK175.....EK210	KH300 **	SK 826 400 -□□	Upon Request
	EK370.....EK550	KH800 **	SK 828 100 -□□	Upon Request

Spare coils for 4 pole contactors DC operated:

Description	For contactor types	Type Code Reference	Order Code	M.R.P
Consists of a set of double wound d.c. operating coil & economising contact	EK110.....EK150	KP210 **	SK 825 450 -□□	Upon Request
	EK175.....EK210	KP300 **	SK 826 450 -□□	Upon Request
Consists of a set comprising d.c. operating coil,economising contact and resistor R1 for EK contactors	EK370.....EK550	KP800 **	SK 828 150 -□□	Upon Request
				Upon Request

Coil voltages & codes

EK110....EK210	
Voltage V 40....400 Hz	Code
100....120	EF
220....230	EL
230....240	EM
400....415	ER

EK110....EK1000		
Voltage V-50 Hz	Voltage V-60 Hz	Code
	110	AE
110	120	AF
220....230		AL
230....240		AM
400....415		AR
EK370....EK1000		
110	110-120	EF
220	220-240	EL
220-230	230-255	EM

for 4 pole EK dc operated	
Voltage V dc	Code
12	DA
24	DB
48	DD
110	DE
220	DF

Spares for contactors

Spare contact sets for 3 pole

Description	For contactor types	Type Code Reference	Order Code	M.R.P
Contact set for 3 -pole contactors consisting of 6 fixed contacts, 3 moving contacts, springs and the required screws	A/AF/AE/TAE50	ZL 50	1SBN 163 503 R1000	2600
	A/AF/AE/TAE63	ZL 63	1SBN 163 703 R1000	3360
	A/AF/AE/TAE75	ZL 75	1SBN 164 103 R1000	4220
	A/AF/AE/TAE95	ZL 95	1SFN 164 303 R1000	6130
	A/AF/AE/TAE110	ZL 110	1SFN 164 503 R1000	6570
	A/AF145	ZL 145	1SFN 164 703 R1000	7800
	A/AF185	ZL 185	1SFN 164 903 R1000	10360
	A/AF210	ZL 210	1SFN 165 103 R1000	12580
	A/AF260	ZL 260	1SFN 165 303 R1000	17030
	A/AF300	ZL 300	1SFN 165 503 R1000	18260
	AF400	ZL 400	1SFN 165 703 R1000	20600
	AF460	ZL 460	1SFN 165 903 R1000	25600
	AF 580	ZL 580	1SFN 166 103 R1000	47300
	AF 750	ZL 750	1SFN 166 303 R1000	55700
	UA 50	ZLU 50	1SBN 163 502 R1000	2670
	UA 63	ZLU 63	1SBN 163 702 R1000	3680
	UA 75	ZLU 75	1SBN 164 102 R1000	4680

Spare contact sets for 4 pole contactors

Description	For contactor types	Type Code Reference	Order Code	M.R.P
Contact sets for 4-Pole contactors consisting of 8-fixed & 4-moving main contacts ,c/w screws & appropriate pressure springs	EK110	KZK110	SK 824 204-A	9460
	EK150	KZK150	SK 824 204-B	11130
	EK175	KZK175	SK 825 204-A	16590
	EK210	KZK210	SK 825 204-B	22820
	EK370	KZK370	SK 827 204-A	36730
	EK550	KZK550	SK 827 204-B	47300
	EK1000	KZK1000	SK 827 204-F	53430

KZK370 to KZK1000 include 4-moving arcing contacts

Spare arc shields: 4 pole contactors

Description	For contactor types	Type Code Reference	Order Code	M.R.P
Spare ARC Shield comprising of the contactor top housing with the relevant arc chutes and fixing screws.	EK110	KWK110	5223 351-AH	9570
	EK150	KWK150	5223 351-AK	11700
	EK175	KWK175	5223 351-AL	13150
	EK210	KWK210	5223 351-AM	13600
	EK370	KWK370	5223 351-Y	17800
	EK550	KWK550	5223 351-Z	22260
	EK1000	KWK1000	5223 351-AN	Upon Request

DOL and Star Delta starters

Direct on line starter:

Rating at 415V 50Hz		Contactor Rating	Back - up Fuse rating (A)	Relay Range	Type Code Reference	Order Code	M.R.P
HP	kW						
0.25	0.18	16A	4A	T25DU 1.0	MA-0.25 **	1SYN140318R8625	2680
0.50	0.37	16A	4A	T25DU 1.4	MA-0.50 **	1SYN140318R8605	2680
0.75	0.52	16A	6A	T25DU 1.8	MA-0.75 **	1SYN140318R8675	2680
1.00	0.75	16A	6A	T25DU 2.4	MA-1.00 **	1SYN140318R8610	2680
1.50	1.10	16A	10A	T25DU 3.1	MA-1.50 **	1SYN140318R8615	2680
2.00	1.50	16A	10A	T25DU 4.0	MA-2.00 **	1SYN140318R8620	2680
3.00	2.20	16A	16A	T25DU 6.5	MA-3.00 **	1SYN140318R8630	2680
5.00	3.70	16A	25A	T25DU 8.5	MA-5.00 **	1SYN140318R8650	2680
7.50	5.50	16A	32A	T25DU 14	MA-7.50 **	1SYN16018R8675	2680
10.00	7.50	16A	32A	T25DU 19	MA-10.00 **	1SYN180318R8610	2900

Fully automatic Star Delta starter:

HP rating at 415V	Contactor Types			Relay Range	Type Code Reference	Order Code	M.R.P
	Main	Delta	Star				
12.5	A16	A16	A09	T25DU 14	SDA-12.5 **	1SYN 184 322R86 00	9640
15	A26	A26	A09	T25DU 14	SDA-15 **	1SYN 242 322R86 00	10710
20	A26	A26	A12	T25DU 19	SDA- 20 **	1SYN 244 322R86 00	11780
25	A26	A26	A16	T25DU 25	SDA-25 **	1SYN 246 322R86 00	12000
30	A30	A30	A16	T25DU 32	SDA-30 **	1SYN 282 322R86 00	17725
35	A30	A30	A16	T75DU 32	SDA-35 **	1SYN 284 322R86 00	18210
40	A40	A40	A26	T75DU 42	SDA-40 **	1SYN 322 322R86 00	23560
50	A50	A50	A26	T75DU 52	SDA-50 **	1SYN 352 342R86 00	27000
60	A63	A63	A30	T75DU 63	SDA-60 **	1SYN 372 342R86 00	36950
75	A75	A75	A40	T75DU 63	SDA-75 **	1SYN 412 342R86 00	42475

Complete the starter type code by replacing the ** with the desired coil voltage.

Voltage	Code
220 ... 230 V coil	3 8
400 ... 415 V coil	8 6

MS116

Breaking Capacity at 415V	Thermal range Amps	Magnetic Tripping Band	Type Code Reference	Order Code	M.R.P
MS 116: 3 pole power manual motor starter with rotary knob control protection against overload, short circuit, phase failure					
50kA	0.10…..0.16	9.6…..14.4In	MS116-0.16	1SAM 250 000 R1001	2650
50kA	0.16…..0.25	9.6…..14.4In	MS116-0.25	1SAM 250 000 R1002	2650
50kA	0.25…..0.40	9.6…..14.4In	MS116-0.40	1SAM 250 000 R1003	2650
50kA	0.40…..0.63	9.6…..14.4In	MS116-0.63	1SAM 250 000 R1004	3030
50kA	0.63…..1.00	9.6…..14.4In	MS116-1.00	1SAM 250 000 R1005	3030
50kA	1.00…..1.60	9.6…..14.4In	MS116-1.60	1SAM 250 000 R1006	3040
50kA	1.60…..2.50	9.6…..14.4In	MS116-2.50	1SAM 250 000 R1007	3040
50kA	2.50…..4.00	9.6…..14.4In	MS116-4.00	1SAM 250 000 R1008	3075
50kA	4.00…..6.30	9.6…..14.4In	MS116-6.30	1SAM 250 000 R1009	3075
50kA	6.30…..10.00	9.6…..14.4In	MS116-10.00	1SAM 250 000 R1010	3175
25kA	8.00…..12.00	9.6…..14.4In	MS116-12	1SAM 250 000 R1012	3600
16kA	10…..16	9.6…..14.4In	MS116-16	1SAM 250 000 R1011	4000
10kA	16….20	12…….18In	MS116-20	1SAM 250 000 R1013	4300
10kA	20…25	12…….18In	MS116-25	1SAM 250 000 R1014	4500
10kA	25…32	12…….18In	MS116-32	1SAM 250 000 R1015	8150

MS132

Breaking Capacity at 415V	Thermal range Amps	Magnetic Tripping Band	Type Code Reference	Order Code	M.R.P
MS 132: 3 pole power manual motor starter with rotary knob control protection against overload, short circuit, phase failure					
100kA	0,1 - 0,16	1,25……1,87	MS132-0.16	1SAM350000R1001	3545
100kA	0,16 - 0,25	1,95……2,92	MS132-0.25	1SAM350000R1002	3545
100kA	0,25 - 0,40	3,12……4,68	MS132-0.40	1SAM350000R1003	3570
100kA	0,40 - 0,63	4,91……7,37	MS132-0.63	1SAM350000R1004	3715
100kA	0,63 - 1,00	9,2……13,8	MS132-1.00	1SAM350000R1005	3920
100kA	1,00 - 1,60	14,7……22,1	MS132-1.60	1SAM350000R1006	4100
100kA	1,60 - 2,50	23,0……34,5	MS132-2.50	1SAM350000R1007	4100
100kA	2,50 - 4,00	40,0……60,00	MS132-4.00	1SAM350000R1008	4140
100kA	4,00 - 6,30	63,0……94,50	MS132-6.30	1SAM350000R1009	4140
100kA	6,30 - 10,0	120,0……180,00	MS132-10.00	1SAM350000R1010	4455
50kA	8,00 - 12,00	144,0……216,00	MS132-12	1SAM350000R1012	4455
50kA	10,0 - 16,0	192,0……288,00	MS132-16	1SAM350000R1011	4900
50kA	16,0 - 20,0	240,0……360,00	MS132-20	1SAM350000R1013	5250
50kA	20,0 - 25,0	300,0……450,00	MS132-25	1SAM350000R1014	5300
25kA	25,0 - 32,0	384,0……576,00	MS132-32	1SAM350000R1015	8100

Breaking Capacity at 415V	"Rated instantaneous short-circuit current setting Ii A"	"Rated operational current Ie A"	Type Code Reference	Order Code	M.R.P
MO 132: 3 Pole Power Manual Motor Starter with Rotary Knob Control magnetic only type : protection against short circuit					
100kA	1.56	0.16	MO132-0.16	1SAM360000R1001	3200
100kA	2.44	0.25	MO132-0.25	1SAM360000R1002	3200
100kA	3.9	0.4	MO132-0.4	1SAM360000R1003	3200
100kA	6.14	0.63	MO132-0.63	1SAM360000R1004	3200
100kA	11.5	1	MO132-1.0	1SAM360000R1005	3650
100kA	18.4	1.6	MO132-1.6	1SAM360000R1006	3650
100kA	28.75	2.5	MO132-2.5	1SAM360000R1007	3650
50kA	50	4	MO132-4.0	1SAM360000R1008	3650
50kA	78.75	6.3	MO132-6.3	1SAM360000R1009	3650
50kA	125	10	MO132-10	1SAM360000R1010	3900
50kA	150	12	MO132-16	1SAM360000R1011	3900
50kA	200	16	MO132-12	1SAM360000R1012	3900
50kA	250	20	MO132-20	1SAM360000R1013	4350
50kA	313	25	MO132-25	1SAM360000R1014	4500
50kA	400	32	MO132-32	1SAM360000R1015	7300

MS450

MS495

Breaking Capacity at 415V	Thermal range Amps	Magnetic Tripping Band	Type Code Reference	Order Code	M.R.P
MS 450: 3 pole power manual motor starter with rotary knob control protection against overload, short circuit, phase failure					
50kA	28…..40A	12In	MS450-40	1SAM 450 000 R1005	10900
50kA	36…..45A	12In	MS450-45	1SAM 450 000 R1006	12040
50kA	40…..50A	12In	MS450-50	1SAM 450 000 R1007	12370
MS 495: 3 pole power manual motor starter with rotary knob control protection against overload, short circuit, phase failure					
50kA	45…..63A	12In	MS495-63	1SAM 550 000 R1007	13975
50kA	57….75A	12In	MS495-75	1SAM 550 000 R1008	13975
50kA	70…..90A	12In	MS495-90	1SAM 550 000 R1009	14520
50kA	80….100A	12In	MS495-100	1SAM 550 000 R1010	16130

Price for Magnetic only types MO 325 / MO 496 / MO 450 / MO 495 are available on request
Price for MS 497 3 Pole Manual Motor Starter with 100 kA breaking capacity are available on request

Accessories for MS116/ MS132/MO132

Accessory	Description	Type Code	Order Code	M.R.P
Auxiliary Contact	Lateral attachment Right side,1NO+1NC	HK1-11	1SAM 201 902 R1001	600
	Lateral attachment Right side, 2NO	HK1-20	1SAM 201 902 R1002	600
	Lateral attachment Right side,2NC	HK1-02	1SAM 201 902 R1003	600
	Lateral attachment front side, 1NO+1NC	HKF1-11	1SAM 201 901 R1001	550
Signalling Contact	Lateral attachment Right side,1NO+1NC	SK1-11	1SAM 201 903 R1001	840
	Lateral attachment Right side, 2NO	SK1-20	1SAM 201 903 R1002	840
	Lateral attachment Right side,2NC	SK1-02	1SAM 201 903 R1003	840
Shunt trip Release	Lateral attachment left side	AA1**	1SAM 201 910 R1001	2625
Under voltage release	Lateral attachment left side	UA1**	1SAM 201 904 R1001	2150
Phase buses for crosswiring MS116	For 2 devices	PS1-2-0	1SAM 201 906 R1002	660
	For 3 devices	PS1-3-0	1SAM 201 906 R1003	760
	For 4 devices	PS1-4-0	1SAM 201 906 R1004	840
	for 5 devices	PS1-5-0	1SAM 201 906 R1005	945
	Power infeed block Flat	S1-M1	1SAM 201 907 R1001	840
	Power infeed block High	S1-M2	1SAM 201 907 R1002	880
Connecting Link	MS116 and A9/A12/A16	BEA16/116	1SBN 081 406 R1000	390
Connecting Link	MS116 and A26	BEA26/116	1SBN 082 406 R1000	480
Connecting Link	MS132 and AF09…AF16	BEA16/4	1SBN 081 306 T1000	340
Connecting Link	MS132 and AF26…AF38	BEA38/4	1SBN 082 306 T2000	400
Mounting plate	MS116 or MS325 + A26	PM26-13	1SBN 092 406 R1000	945
Door Mounted Handle	MSMN Driver	MSMN Driver	1SAM101923R0002	200
	OXS6X130	OXS6X130	1SCA101655R1001	600
	Handle Mechanism	Handle Mechanism	1SAM201920R1001	850
Insulating enclosure IP65	Insulating enclosure IP65 with rotory handle. Twist knob Black	IB 116-G	1SAM 201 911 R1000	1470
	Insulating enclosure IP65 with rotory handle. Twist knob Yellow	IB 116-Y	1SAM 201 911 R1001	1575

* coil voltages available are 24V, 110V, 230V, 400V
** coil voltages available are 24V, 120V, 230V, 415V

Accessories for MS450/495/496/497:

Accessory	Description	Type Code	Order Code	M.R.P
Auxiliary Contact front mounting	1NO+1NC	HK4 - 11	1SAM 401 901 R1001	710
	1 C/O	HK4 - W	1SAM 401 901 R1002	710
Auxiliary Contact lateral mounting	1NO+1NC	HKS4-11	1SAM 401 902 R1001	710
	2NO	HKS4 - 20	1SAM 401 902 R1002	710
	2NC	HKS4 - 02	1SAM 401 902 R1003	710
Signalling Contact	1NO+1NC	SK4 - 11	1SAM 401 904 R1001	1360
Door Mounted Handle	MSMN Driver	MSMN Driver	1SAM 101 923R0002	200
	OXS6X130	OXS6X130	1SCA 101655R1001	600
	Handle Mechanism	Handle Mechanism	1SAM 201920R1001	850
Shunt trip release	Lateral mounting- left side	AA4**	1SAM 401 907 R1001	2050
Under voltage release	Lateral mounting- right side	UA4**	1SAM 401 905 R1004	2050

* coil voltages available are 20-70V, 70-190V, 190-330V,330-500V
** coil voltages available are 24V,110V, 230V,400V

TA25, TA42 and TA75 relays

Relay range in Amps	"Direct mounting on contactors"	"Type Code reference"	Order Code	M.R.P
0.1 ... 0.16	"A9…A40 AL9..AL40 TAL9…TAL40 AL9Z…AL16Z"	TA25DU 0.16M	1SAZ 211 201 R2005	1365
0.1 ... 0.16		TA25DU 0.25M	1SAZ 211 201 R2009	1365
0.25 ... 0.4		TA25DU 0.4M	1SAZ 211 201 R2013	1365
0.4 ... 0.63		TA25DU 0.63M	1SAZ 211 201 R2017	1365
0.63 ... 1.0		TA25DU 1.0M	1SAZ 211 201 R2021	1365
1.0 ... 1.4		TA25DU 1.4M	1SAZ 211 201 R2023	1365
1.3 ... 1.8		TA25DU 1.8M	1SAZ 211 201 R2025	1365
1.7 ... 2.4		TA25DU 2.4M	1SAZ 211 201 R2028	1365
2.2 ... 3.1		TA25DU 3.1M	1SAZ 211 201 R2031	1365
2.8 ... 4.0		TA25DU 4.0M	1SAZ 211 201 R2033	1365
3.5 ... 5.0		TA25DU 5.0M	1SAZ 211 201 R2035	1365
4.5 ... 6.5		TA25DU 6.5M	1SAZ 211 201 R2038	1365
6.0 ... 8.5		TA25DU 8.5M	1SAZ 211 201 R2040	1365
7.5 ... 11.0		TA25DU 11M	1SAZ 211 201 R2043	1365
10.0 ... 14.0		TA25DU 14M	1SAZ 211 201 R2045	1365
13.0 ... 19.0		TA25DU 19M	1SAZ 211 201 R2047	1675
18.0 ... 25.0		TA25DU 25M	1SAZ 211 201 R2051	1675
24.0 ... 32.0		TA25DU 32M	1SAZ 211 201 R2053	2350
18.0 ... 25.0	"A30,A40, AL30,AL40, TAL30,TAL 40"	TA42DU 25	1SAZ 311 201 R1001	2720
22.0 ... 32.0		TA42DU 32	1SAZ 311 201 R1002	2720
29.0 ... 42.0		TA42DU 42	1SAZ 311 201 R1003	2720
22 ... 32	A50...A75 AE50...AE75 TAE50...TAE75 AF50...AF75	TA75DU 32	1SAZ 321 201 R1002	3500
29 ... 42		TA75DU 42	1SAZ 321 201 R1003	4100
36 ... 52		TA75DU 52	1SAZ 321 201 R1004	4100
45 ... 63		TA75DU 63	1SAZ 321 201 R1005	4100
60 ... 80		TA75DU 80	1SAZ 321 201 R1006	4400

TA25/TA42/TA75/TA80/TA110/TA200 are direct operated relays with trip class 10A

Accessories

Independent Mounting Kit	TA25DU0.16..25A	DB25/25	1SAZ 201 108 R0001	300
	TA25DU32	DB25/32	1SAZ 201 108 R0002	1125
	TA42DU,TA75DU	DB80	1SAZ301110R0001	1890

Ti135 and Ti450 Relays

Relay range in Amps	Mounting on contactors	Type Code reference	Order Code	M.R.P
65…91	Sepearate Mounting	Ti135 DU90	1SYN410002B1	6400
80…112		Ti135DU 110	1SYN410003B1	6400
100…140		Ti135DU 135	1SYN410004B1	6400
130…185		Ti450DU 185	1SYN410005B1	6400
165…236		Ti450DU 235	1SYN410006B1	8400
217…310		Ti450DU 310	1SYN410007B1	8400
280…400		Ti450DU 400	1SYN410008B1	8400

Ti are CT-operated relays with trip class 20

Thermal overload relays

TF42

TF42 Relays

Relay range in Amps	Direct mounting on contactors	Type Code reference	Order Code	M.R.P
0.10 ... 0.13	AF09…AF38	TF42-0.13	1SAZ721201R1005	Upon Request
0.13 ... 0.17		TF42-0.17	1SAZ721201R1008	
0.17 ... 0.23		TF42-0.23	1SAZ721201R1009	
0.23 ... 0.31		TF42-0.31	1SAZ721201R1013	
0.31 ... 0.41		TF42-0.41	1SAZ721201R1014	
0.41 ... 0.55		TF42-0.55	1SAZ721201R1017	
0.55 ... 0.74		TF42-0.74	1SAZ721201R1021	
0.74 ... 1.00		TF42-1.0	1SAZ721201R1023	
1.00 ... 1.30		TF42-1.3	1SAZ721201R1025	
1.30 ... 1.70		TF42-1.7	1SAZ721201R1028	
1.70 ... 2.30		TF42-2.3	1SAZ721201R1031	
2.30 ... 3.10		TF42-3.1	1SAZ721201R1033	
3.10 ... 4.20		TF42-4.2	1SAZ721201R1035	
4.20 ... 5.70		TF42-5.7	1SAZ721201R1038	
5.70 ... 7.60		TF42-7.6	1SAZ721201R1040	
7.60 ... 10.0		TF42-10	1SAZ721201R1043	
10.0 ... 13.0		TF42-13	1SAZ721201R1045	
13.0 ... 16.0		TF42-16	1SAZ721201R1047	
16.0 ... 20.0		TF42-20	1SAZ721201R1049	
20.0 ... 24.0		TF42-24	1SAZ721201R1051	
24.0 ... 29.0		TF42-29	1SAZ721201R1052	
29.0 ... 35.0		TF42-35	1SAZ721201R1053	
35.0 ... 38.0/40.0		TF42-38	1SAZ721201R1055	

T16 Relays

Relay range in Amps	Direct mounting on contactors	Type Code reference	Order Code	M.R.P
0.10 ... 0.13	B6/BC6 B7/BC7 VB6/VBC6 VB7/VBC7 AS/ASL	T16-0.13	1SAZ711201R1005	Upon Request
0.13 ... 0.17		T16-0.17	1SAZ711201R1008	
0.17 ... 0.23		T16-0.23	1SAZ711201R1009	
0.23 ... 0.31		T16-0.31	1SAZ711201R1013	
0.31 ... 0.41		T16-0.41	1SAZ711201R1014	
0.41 ... 0.55		T16-0.55	1SAZ711201R1017	
0.55 ... 0.74		T16-0.74	1SAZ711201R1021	
0.74 ... 1.00		T16-1.0	1SAZ711201R1023	
1.00 ... 1.30		T16-1.3	1SAZ711201R1025	
1.30 ... 1.70		T16-1.7	1SAZ711201R1028	
1.70 ... 2.30		T16-2.3	1SAZ711201R1031	
2.30 ... 3.10		T16-3.1	1SAZ711201R1033	
3.10 ... 4.20		T16-4.2	1SAZ711201R1035	
4.20 ... 5.70		T16-5.7	1SAZ711201R1038	
5.70 ... 7.60		T16-7.6	1SAZ711201R1040	
7.60 ... 10.0		T16-10	1SAZ711201R1043	
10.0 ... 13.0		T16-13	1SAZ711201R1045	
13.0 ... 16.0		T16-16	1SAZ711201R1047	

Electronic overload relays class 10, 20, 30

E16DU

low res

E80DU

Trip Class 10, 20, 30 selectable

Type	Setting Range	Trip Class	Contactor Designation	Order Code	M.R.P
E16DU 0.32	0.1 - 0.32A	Selecatable	B...6-B...7 / A...9...A...16...	1SAX 111 001 R1101	Upon Request
E16DU 1.0	0.3 - 1.0A	Selecatable	B...6-B...7 / A...9...A...16...	1SAX 111 001 R1102	
E16DU 2.7	0.8 - 2.7A	Selecatable	B...6-B...7 / A...9...A...16...	1SAX 111 001 R1103	
E16DU 6.3	1.9 - 6.3A	Selecatable	B...6-B...7 / A...9...A...16...	1SAX 111 001 R1104	
E16DU 18.9	5.7 - 18.9A	Selecatable	B...6-B...7 / A...9...A...16...	1SAX 111 001 R1105	
E45DU 30	9 - 30A	Selecatable	A…26…A…40	1SAX 211 001 R1101	
E45DU 45	15 - 45A	Selecatable	A…26…A…40	1SAX 211 001 R1102	
E80DU 80	27 - 80A	Selecatable	A…50…A…75	1SAX 311 001 R1101	
E140DU 140	50 - 140A	Selecatable	A…95…A…110	1SAX 321 001 R1101	
E200DU 200	60 - 200A	Selecatable	A…145…A…185	1SAX 511 001 R1101	
E320DU 320	100 - 320A	Selecatable	A…210…A…300	1SAX 521 001 R1101	
E500DU 500	150 - 500A	Selecatable	A…400…A…460	1SAX 711 001 R1101	
E800DU 800	250 - 800A	Selecatable	A…580…A…750	1SAX 811 001 R1101	
E1250DU 375 - 1250 A	375 - 1250A	Selecatable	A…1350…A…1630	1SFA 739 001 R1000	

Accessories

Type	Description	Order Code	M.R.P
DB16E	Separate mounting kit	1SAX 101 110 R0001	Upon Request
DB45E	Separate mounting kit	1SAX 201 110 R1001	
DB80E	Separate mounting kit	1SAX 301 110 R1001	
DB140E	Separate mounting kit	1SAX 301 110 R1002	
LT200E	Terminal shrouds for E200DU	1SAX 501 904 R0001	
LT320E	Terminal shrouds for E320DU	1SAX 601 904 R0001	
LT500E	Terminal shrouds for E500DU	1SAX 701 904 R0001	
LT800E	Terminal shrouds for E800DU	1SAX 801 904 R0001	

FBP FieldBusPlug
Motor management, general information

With the Universal Motor Controller UMC100-FBP, ABB provides the optimum solution for integrating motor control into system control. The UMC100-FBP is a flexible, modulary expandable motor management system for low voltage motors with constant rotational speed. Its most important task is avoiding system downtimes through early detection of possible drive problems and reducing the associated downtimes through quick detection of the error cause if a motor stop has occurred.

Universal Motor Controller UMC100-FBP

Continued further development

The UMC100-FBP Universal Motor Controller ideally supplements the already proven UMC22-FBP with several additional functions and extensions. It is based on ABB's long-standing experience in the area of motor protection and drive technology.

Motor management and more

With its predefined control features and the option to optimally adapt the device to different system conditions due to its flexible logic, the UMC100-FBP is very well suited to varied applications. For complex applications with more I/Os or special signals, extension modules are available.

Operating panel UMC100 PAN

High system availability

The UMC100-FBP continuously provides extensive operating, service and diagnostic data of the motor. This enables the operator to detect faults in time or to even prevent these with suitable measures, or to limit their effect. Quick error location and elimination increases system availability.

Electronic full motor protection

The comprehensive electronic full motor protection is self-sufficient and guarantees full motor protection even if superordinated automation or process control systems or the bus system fail. The high accuracy of the electronic measuring system better utilizes the performance of the motors. The digital technology guarantees high long-term stability of the tripping characteristic and consistent tripping behavior even after many years of use.

I/C expansion modules DX111-FBP/DX122-FBP

Less planning, development and material effort

The UMC100-FBP already convinces during the planning and development phase due to its universal and modular structure. All required protection, monitoring and control features are integrated in one single device, which thus reduces the wiring effort. One single version for all current ranges and field buses simplifies planning and service from systems through to the spares inventory.

Simple integration in a confined space

Due to its compact design with integrated measuring system, the UMC100-FBP reduces the required floor space. This is important for application in low voltage drawer systems in conditions with limited space, or for conversion of existing systems to a modern motor management system.

I/C expansion modules V1150-FBP/V1155-FBP

Flexible integration into process control

With the FieldBusPlug, the UMC100-FBP can communicate with control systems via the widespread standard fieldbus systems PROFIBUS DP, CANopen, DeviceNet or Modbus. With the FDT interface it is easy to configure the motor management in the process control and adapt it to the process.

FBP FieldBusPlug
Motor management, general information

Customer-specific application

Application in industrial plants

In large industrial systems it is quite common that several thousand motors are required to provide the requied movement. This in turn requires intelligent devices on site, as well as a continuous connection from the process control and automation level through to the field. For this reason it is particularly important that motors can be easily integrated into system control and monitoring. With the FieldBusPlug system and the new UMC100-FBP motor management system, the best prerequisites are created for this. Intelligent motor management ensures high reliability in the process. The UMC100-FBP motor management system is easy to handle, from planning and implementation through to on-site service.

Application of UMC100-FBP Universal Motor Controllers in MCCs

The use of intelligent motor management systems with their coordinated accessories provides many advantages.

- When removing the basic drawer unit from the control cabinet, the bus system remains fully operational. This applies to all FieldBusPlugs. There are no branch lines that could result in malfunctions of the fieldbus.
- Bus addresses are kept

FBP FieldBusPlug
Motor management system UMC100-FBP & accessories, ordering data

UMC100-FBP

Universal Motor Controller UMC100-FBP

Intelligent motor management system for three-phase with I_e = 0,24 - 63 A n one single device. Compact housing with integrated bushing-type current transformer for cable cross section up to 25 mm2 (max. O with Insullation 11 mm). Higher currents with additional external current transformer.
Thermal overload protection according to EN/IEC 60947-4-1, selectable trip classes 5E, 10E, 20E, 30E, 40E.
(Some functions require the additional use of a voltage expansion module V1150 or V1155)

Motor protection functions	:	Over-/Underload, Over-/Undercurrent, Over-/Undervoltage, rotor blocking Phase failure / imbalance / sequence Earth fault detection intergrated or with external sensor CEM11 Thermistor motor protection
Motor control functions	:	Easily configurable motor control functions: direct, reverse, star-delta starter, pole-changing, overload relay, actuator mode. Additionally free progammable application specific logic with function blocks
Service and diagnostic data	:	Operating hours, number of motor starts and overload trips Motorstatus, faults and warnings, fault history (16 events) Motor current, phase voltages, thermal load, power factor (ccs 0), active power, apparent power, energy, total harmonic distortion (THD).

FBP FieldBusPlug
Motor management system UMC100-FBP & accessories, ordering data

Integrated I/Os: 6 digital inputs, 1 FTC input, 4 digital outputs. Maximum number of I/Os with expansion module: 14 digital inputs, 1 PTC input, 8 digital outputs, 1 analogue output,
Interface for FieldBusPlug for communication via fieldbus systems,
Interface for operator panel UMC100-PAN, Bus interface for connection of expansion modules UMC100 requires 24 V DC power supply.

Type	Designation	Nominal motor current	Order code
UMC100-FBP.0	Universal Motor Controller	0.24 - 63 A	1SAJ 520 000 R0101
UMC100-FBP.2	Universal Motor Controller, ATEX	0.24 - 63 A	1SAJ 520 000 R0200

DX111-FBP /
DX122-FBP

Expansion modules and accessories for Universal Motor Controller UMC100-FBp

Ione I/O-expansion-module Dx111 or Dx122 and one voltage-expansion-module V1150 or V1155 can be connected to a UMC100. All expansion modules require 24 V DC power supply

DX111-FBP.0	:	I/O-expansion module with 8 digital inputs 24 V DC,4 relay outputs, 1 analog output 0/4...20 mA or 0...10 V
DX122-FBP.0	:	I/O-expansion module with 8 digital inputs 110 / 230 V AC, 4 relay outputs, 1 analog output 0/4 - 0 mA or 0 - 10 V
V1150-FBP.0	:	Voltage expansion module for use in grounded networks, 150 - 690 V AC
V1155-FBP.0	:	Voltage expansion module for use in all networks, 150 - 690 V AC Voltage modules for the determination of phase voltages, power factor (cos 0), apparent power, energy, total harmonic distortion (THD)

VI150-FBP /
VI155-FBP

Type	Designation	For use with	Order code
DX111-FBP.0	1/O module for UMC100, 24 V DC digital input and supply voltage	UMC100-FBP	1SAJ 611 000 R0101
DX122-FBP.0	1/O module for UMC100, 110-230 V AC digital input, 24 V DC supply voltage	UMC100-FBP	1SAJ 622 000 R0101
V1150-FBP.0	3 phase Voltage module for grounded networks	UMC100-FBP	1SAJ 650 000 R0100
V1155-FBP.0	3 phase Voltage module for all networks	UMC100-FBP	1SAJ 655 000 R0100
UMCIO-CAB.030	Connection cable UMC100 - I/O module, length 0.30 m	UMC100-FBP	1SAJ 691 000 R0001
IOIO-CAB.030	Connection cable IO-module - IO module, length 0.30 m	UMC100-FBP	1SAJ 692 000 R0001
UMCTB-FBP.0	Terminal set for UMC (spare parts)	UMC22-FBP	1SAJ 929 160 R0001

FBP FieldBusPlug
Communicative motor starter UMC100-FBP with control functions, ordering data

UMC10C-PAN

Operating panel UMC100-PAN and accessories for Universal Motor Controller UMC100-FBP

Operating, diagnostics and parameter setting panel for Universal Motor Controller UMC100-FBP. Setting of motor and bus parameters. Backlit graphical multilingual display. Assembly directly on UMC100-FBP or on the control cabinet door via extension cable and door mounting set Ip65 (front side)

Type	Designation	For use with	Order code
DX111-FBP.0	Operating panel	UMC100-FBP	1SAJ 590 000 R0102
DX122-FBP.0	3 m ext. cable with door mounting set	UMC100-FBP UMC22-FBP	1SAJ 510 002 R0001
V1150-FBP.0	0.7 m ext. cable with door mounting set	UMC100-FBP UMC22-FBP	1SAJ 510 003 R0001
V1155-FBP.0	1.5 m ext. cable with door mounting set	UMC100-FBP UMC22-FBP	1SAJ 510 004 R0001

UMC22-FBP

Universal Motor Controller UMC22-FBP

Universal Motor controller for three-phase motors of 0.24 - 63 A in one single device type.
Thermal overload protection according to EN/IEC 60947-4-1, adjustable trip categories 5, 10, 20, 30
Integrated bushing-type current transformers for cable cross section up to 25 mm2 (11 mm max. diameter incl. insulation).
Easily configureable motor control functions: Direct starting, reverse starting, star-delta starting, actuator, pole-changing.
Motor protection functions: Overload, blocking, phase failure, ground fault with sensor CEM11, temperature.
Diagnostic functions: Operating hours, number of motor starts and overloads, storage of parameters and motor data.
Integrated I/os: 6 dgital inputs, 1 PTC input, 3 relay outputs.
Fieldbus-neutral interface for FieldBusPlug. Interface to UMC-PAN control panel.

Type	Designation	Nominal motor current	Order code
UMC22-FBP.0	Universal Motor Controller	0.24 - 63 A	1SAJ 510 000 R0600

UMC-PAN

Operating panel UMC100-PAN with accessories for Universal Motor Controller UMC22-FBP

Operating, diagnostics and parameter setting panel for Universal Motor Controller UMC22-FBP.
Setting of motor and bus parameters.
Copy function: Reading and transferring motor parameters to additional UMC22-FBPs.
Accessories: Extension cable and door mounting set IP65 (front side).

Type	Designation	For use with	Order code
UMC-PAN	Operating panel	UMC22-FBP	1SAJ 510 001 R0002
UMCPAN-CAB.300	3 m ext. cable with door mounting set	UMC22-FBP UMC100-FBP	1SAJ 510 002 R0001
UMCPAN-CAB.070	0.7 m ext. cable with door mounting set	UMC22-FBP UMC100-FBP	1SAJ 510 003 R0001
UMCPAN-CAB.150	1.5 m ext. cable with door mounting set	UMC22-FBP UMC100-FBP	1SAJ 510 004 R0001

Softstarters
ABB softstarters - The complete range

ABB offers four different ranges of softstarters to cover every customer need for solutions for motor sizes up to 1800 A. This page decribes the main characteristics of the different softstarter ranges

PSR - The compact range
The PSR softstarter is the most compact of all the softstarter ranges, thereby making it possible to design compact starting equipments. The system concept with Manual Motor Starters and the PSR provides a far more compact starting solution than for instance a star delta starter.
Built-in by-pass reduces the energy loss and makes the connection easier and with only three potentiometers, the set-up couldn't be any easier. Still, the optimized ramping characteristics will ensure a very smooth start and stop for all applications.

PSE - The efficient range
The PSE soitstarter is the world's first compact softstarter with both built-in electronic overload for motor protection and torque control for an excellent control of pumps. The compact design with the most important functionality integrated provides a very efficient starting solution.
The illuminated language neutral display and the four button keypad make it easy to take advantage of all the advanced functionality in the softstarter. The display will also provide all the necessary information both during

PSR18 - 600 -70
- Softstarter range
- Current rating: 18 A
- Operational voltage: 600 V
- Control supply voltage: 70 = 100 - 250 V AC, 81 = 24 V DC

PST(B) - The advanced range
The PST(B) softstarter is the most advanced sottstarter in the range with almost all imaginable functionality included. All the advanced protections for the motor, the softstarter and the load ensure a trouble free operation. Pre-warnings even aliow problems to be detected before the motor needs to be stopped
The torque control function has been developed and tested together with well known pump manufacturers to ensure the absolutely best possible stop of pumps without water hammering and pressure surges. and there by avoiding unnecessary downtime.
With the full text LCD display in your own language, pre-prow grammed
application settings and event logging, it couldn't be easier to set-up and operate.
By using the ABB FieldBusPlug, you can decide at any time which bus protocol to use. The fieldbus system will allow you to set-up, control and monitor the sottstarter.

PSR	PSS	PSE	PST(B)	• Standard O Opional - Not available
•	-	•	• 1)	Built-in by-pass
-	•	-	•	Inside delta connection
-	-	•	O	Coated PCBs
-	-	•	•	Display and keypad
-	-	•	•	Torque control
-	O	•	•	Settable current limit function
-	-	•	•	Elecironic motor ovedoad protection
-	-	-	•	PTC input for motor protection
-	-	-	•	Phase imbalance protection
-	-	-	•	Phase reversal protection
-	-	•	•	Locked rotor protection
-	•	•	•	Thyristor overtemperature protection
-	-	•	•	Underload protection
-	-	-	•	Programmable warning functions
-	-	•	•	Analog output
O	-	O	•	FieldBus communication
-	-	O	•	Event log
-	-	O	O	External keypad

Quick guide for selection

Heavy duty

Normal start Class 10	Heavy duty start class 30

Typical applications

• Bow thruster	• Centrifugal pump	• Centrifugal fan	• Conveyor belt (long)
• Compressor	• Conveyor belt (short)	• Crusher	• Mill
• Elevator	• Escalator	• Mixer	• Stirrer

If more than 10 starts/h
Select <u>one</u> size larger than the standard selection




PSR - The compact and cost effective solution integrated bypass
PSR3 ... PSR105
Rated operational voltage Ue, 208-600 V AC
Rated control supply voltage, Us, 100 - 240 V AC

415V Pe kW"	500V Pe kW	IEC Max rated operational Ie A	Type	Order Code	M.R.P
1.5	2.2	3.9	PSR3-600-70	1SFA896 103 R7000	7800
3	4	6.8	PSR6-600-70	1SFA896 104 R7000	8400
4	4	9	PSR9-600-70	1SFA896 105 R7000	10400
5.5	5.5	12	PSR12-600-70	1SFA896 106 R7000	12300
7.5	7.5	16	PSR16-600-70	1SFA896 107 R7000	13900
11	15	25	PSR25-600-70	1SFA896 108 R7000	16200
15	18.5	30	PSR30-600-70	1SFA896 109 R7000	22000
18.5	22	37	PSR37-600-70	1SFA896 110 R7000	26600
22	30	45	PSR45-600-70	1SFA896 111 R7000	29000
30	37	60	PSR60-600-70	1SFA896 112 R7000	40500
37	45	72	PSR72-600-70	1SFA896 113 R7000	51000
45	55	85	PSR85-600-70	1SFA896 114 R7000	58000
55	55	105	PSR105-600-70	1SFA896 115 R7000	62500

For Rated control supply voltage, Us, 24 V Dc replace R7000 by R8100



PSE - The efficient range with integrated bypass
Normal Starts , Class 10, In-Line

415V Pe kW	500V Pe kW	IEC Max rated operational Ie A	Type	Order Code	M.R.P
7.5	11	18	PSE18-600-70	1SFA897 101 R7000	35600
11	15	25	PSE25-600-70	1SFA897 102 R7000	36700
15	18.5	30	PSE30-600-70	1SFA897 103 R7000	38900
18.5	22	37	PSE37-600-70	1SFA897 104 R7000	44000
22	30	45	PSE45-600-70	1SFA897 106 R7000	49400
30	37	60	PSE60-600-70	1SFA897 106 R7000	56500
37	45	72	PSE72-600-70	1SFA897 107 R7000	63600
45	55	85	PSE85-600-70	1SFA897 108 R7000	67200
55	75	106	PSE105-600-70	1SFA897 109 R7000	73000
75	90	143	PSE142-600-70	1SFA897 110 R7000	100800
90	110	171	PSE170-600-70	1SFA897 111 R7000	110300
110	132	210	PSE210-600-70	1SFA897 112 R7000	117600
132	160	250	PSE250-600-70	1SFA897 113 R7000	130200
160	200	300	PSE300-600-70	1SFA897 114 R7000	142800
200	250	370	PSE370-600-70	1SFA897 115 R7000	155400





Normal starts, class 10, In-Line
PST30 ... PSTB1050
Rated operational voltage Ue, 208 - 600 V
Rated control supply voltage, Us, 100 - 250 V AC, 50/60 Hz

415V Pe kW	500V Pe kW	690V Pe kW	IEC Max rated operational Ie A	Type*)	Order code**)	M.R.P
15	18.5	-	30	PST30-600-70▪	1SFA894 002 R70▾0	Upon Request
18.5	22	-	37	PST37-600-70▪	1SFA894 003 R70▾0	
22	15	-	44	PST44-600-70▪	1SFA894 004 R70▾0	
25	30	-	50	PST50-600-70▪	1SFA894 005 R70▾0	
30	37	-	60	PST60-600-70▪	1SFA894 006 R70▾0	
37	45	-	72	PST72-600-70▪	1SFA894 007 R70▾0	
45	55	-	85	PST85-600-70▪	1SFA894 008 R70▾0	
55	75	-	105	PST105-600-70▪	1SFA894 009 R70▾0	
75	90	-	142	PST142-600-70▪	1SFA894 010 R70▾0	
90	110	-	175	PST175-600-70▪	1SFA894 011 R70▾0	
110	132	-	210	PST210-600-70▪	1SFA894 012 R70▾0	
132	160	-	250	PST250-600-70▪	1SFA894 013 R70▾0	
160	200	-	300	PST300-600-70▪	1SFA894 014 R70▾0	
200	257	-	370	PSTB370-600-70▪	1SFA894 015 R70▾0	
250	315	-	470	PSTB470-600-70▪	1SFA894 016 R70▾0	
315	400	-	570	PSTB570-600-70▪	1SFA894 017 R70▾0	
400	500	-	720	PSTB720-600-70▪	1SFA894 018 R70▾0	
450	600	-	840	PSTB840-600-70▪	1SFA894 019 R70▾0	
560	730	-	1050	PSTB1050-600-70▪	1SFA894 020 R70▾0	

*) Add code number in Type acc. to: ▪ No code letter = Normal I T = Coated PCBs
*) Add code number in Type acc. to: ▼ 0 = Normal I 2 = Coated PCBs





PST(B) – The advanced range -Heavy Duty, class 30, In-Line, ordering details
PST30 ... PSTB1050 / Rated operational voltage U , 400 - 690 V e
Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

415V Pe kW	500V Pe kW	690V Pe kW	IEC Max rated operational Ie A	Type*)	Order code**)	M.R.P
11	15	18.5	22	PST30-690-70▪	1SFA895 002 R70▾0	Upon Request
15	18.5	25	3	PST37-690-70▪	1SFA895 003 R70▾0	
18.5	22	30	37	PST44-690-70▪	1SFA895 004 R70▾0	
22	25	37	44	PST50-690-70▪	1SFA895 005 R70▾0	
25	30	45	50	PST60-690-70▪	1SFA895 006 R70▾0	
30	37	55	60	PST72-690-70▪	1SFA895 007 R70▾0	
37	45	59	72	PST85-690-70▪	1SFA895 008 R70▾0	
45	55	75	85	PST105-690-70▪	1SFA895 009 R70▾0	
55	75	90	105	PST142-690-70▪	1SFA895 010 R70▾0	
75	90	132	142	PST175-690-70▪	1SFA895 011 R70▾0	
90	110	160	175	PST210-690-70▪	1SFA895 012 R70▾0	
110	132	184	210	PST250-690-70▪	1SFA895 013 R70▾0	
132	160	220	250	PST300-690-70▪	1SFA895 014 R70▾0	
160	200	257	300	PSTB370-690-70▪	1SFA895 015 R70▾0	
200	257	355	370	PSTB470-690-70▪	1SFA895 016 R70▾0	
250	315	450	470	PSTB570-690-70▪	1SFA895 017 R70▾0	
315	400	560	570	PSTB720-690-70▪	1SFA895 018 R70▾0	
400	500	710	720	PSTB840-690-70▪	1SFA895 019 R70▾0	
450	600	800	840	PSTB1050-690-70▪	1SFA895 020 R70▾0	

*) Add code number in Type acc. to: ▪ No code letter = Normal I T = Coated PCBs
*) Add code number in Type acc. to: ▼ 0 = Normal I 2 = Coated PCBs

ON-delay timers
CT-ERE : 1 c/o contact, 2 LEDs

Type	"Rated control supply voltage"	Time Range	Order code	M.R.P
CT-ERE	"24 V AC/DC, 220-240 V AC"	0.1-10 s	1SVR 550 107 R1100	1990
		0.3-30 s	1SVR 550 107 R4100	1990
		3-300 s	1SVR 550 107 R2100	1990
		0.3-30 min	1SVR 550 107 R5100	1990
	110-130 V AC	0.1-10 s	1SVR 550 100 R1100	1990
		0.3-30 s	1SVR 550 100 R4100	1990
		3-300 s	1SVR 550 100 R2100	1990
		0.3-30 min	1SVR 550 100 R5100	1990

OFF-delay timers
CT-AHE : 1 c/o contact, 2 LEDs

Type	"Rated control supply voltage"	Time Range	Order code	M.R.P
CT-AHE	"24 V AC/DC, 220-240 V AC"	0.1-10 s	1SVR 550 118 R1100	2000
		0.3-30 s	1SVR 550 118 R4100	2000
		3-300 s	1SVR 550 118 R2100	2000
	110-130 V AC	0.1-10 s	1SVR 550 110 R1100	2000
		0.3-30 s	1SVR 550 110 R4100	2000
		3-300 s	1SVR 550 110 R2100	2000
	200-240 V AC	0.1-10 s	1SVR 550 110 R2100	2000
		0.3-30 s	1SVR 550 111 R4100	2000
		3-300 s	1SVR 550 111 R2100	2000

CT-ARE : without auxiliary voltage, 1 c/o contact, 1 LED

Type	"Rated control supply voltage"	Time Range	Order code	M.R.P
CT-ARE	"24 V AC/DC, 220-240 V AC"	0.1-10 s	1SVR 550 127 R1100	2010
		0.3-30 s	1SVR 550 127 R4100	2010
	110-130 V AC	0.1-10 s	1SVR 550 120 R1100	2010
		0.3-30 s	1SVR 550 120 R4100	2010

Multifunction timer
CT-MFE : 6 functions1), 8 time ranges (0.05 s - 100 h), 1 c/o contact, 2 LEDs

Type	"Rated control supply voltage"	Time Range	Order code	M.R.P
CT-MFE	24-240 V AC/DC	"0.05 s - 100 h"	1SVR 550 029 R8100	3750

Star Delta timers FA, FC
CT-YDE : ON-delayed, OFF-delayed without auxiliary voltage, 1 c/o contact, 2 LEDs

Type	Rated control supply voltage	Time Range	Order code	M.R.P
CT-YDE	24 V AC/DC,220 -240V AC	0.1-10 s	1SVR 550 207 R1100	1990
		0.3-30 s	1SVR 550 207 R4100	
		3-300 s	1SVR 550 207 R2100	
	110-130V AC	0.1-10 s	1SVR 550 200 R1100	
		0.3-30 s	1SVR 550 200 R4100	
		3-300 s	1SVR 550 200 R2100	

CT-SDE: ON-delayed with fixed transition time, 1 n/c contact, 1 n/o contact, internally wired, 2 LEDs

Type	Rated control supply voltage	Time Range	Order code	M.R.P
CT- SDE	24 V AC/DC,220 -240V AC	0.3-30 s	1SVR 550 217 R4100	
	110-130V AC		1SVR 550 210 R4100	2500
	380-415V AC		1SVR 550 212 R4100	

Power supplies

CP-E range

Type	Rated I/P voltage	Rated O/P Voltage/Current	Order Code	M.R.P
CP-E 5/3.0	100-240 V AC	5 V DC / 3 A	1SVR 427 033 R3000	4400
CP-E 12/2.5	100-240 V AC	12 V DC / 2.5 A	1SVR 427 032 R1000	4400
CP-E 12/10.0	115 / 230 V AC auto select	12 V DC / 10 A	1SVR 427 035 R1000	7850
CP-E 24/0.75	100-240 V AC	24 V DC / 0.75 A	1SVR 427 030 R0000	3380
CP-E 24/1.25	100-240 V AC	24 V DC / 1.25 A	1SVR 427 031 R0000	3800
CP-E 24/2.5	100-240 V AC	24 V DC / 2.5 A	1SVR 427 032 R0000	3830
CP-E 24/5.0	115 / 230 V AC auto select	24 V DC / 5 A	1SVR 427 034 R0000	6590
CP-E 24/10.0	115 / 230 V AC auto select	24 V DC / 10 A	1SVR 427 035 R0000	9900
CP-E 24/20.0	115 / 230 V AC	24 V DC / 20 A	1SVR 427 036 R0000	17550
CP-E 48/0.62	100-240 V AC	48 V DC / 0.625 A	1SVR 427 030 R2000	4610
CP-E 48/1.25	100-240 V AC	48 V DC / 1.25 A	1SVR 427 031 R2000	5850
CP-E 48/5.0	115 / 230 V AC auto select	48 V DC / 5 A	1SVR 427 034 R2000	11860
CP-E 48/10.0	115 / 230 V AC	48 V DC / 10 A	1SVR 427 035 R2000	16180

CP-T range

Type	"Rated I/P voltage"	"Rated O/P Voltage/Current"	Order Code	M.R.P
CP-T 24/5.0	340-575 V AC/ 480-820 V DC	24 V DC / 5 A	1SVR 427 054 R0000	9650
CP-T 24/10.0	340-575 V AC/ 480-820 V DC	24 V DC / 10 A	1SVR 427 055 R0000	12270
CP-T 24/20.0	340-575 V AC/ 480-820 V DC	24 V DC / 20 A	1SVR 427 056 R0000	15230
CP-T 24/40.0	340-575 V AC/ 480-820 V DC	24 V DC / 40 A	1SVR 427 057 R0000	27300
CP-T 48/5.0	340-575 V AC/ 480-820 V DC	48 V DC / 5 A	1SVR 427 054 R2000	16800
CP-T 48/10.0	340-575 V AC/ 480-820 V DC	48 V DC / 10 A	1SVR 427 055 R2000	20480
CP-T 48/20.0	340-575 V AC/ 480-820 V DC	48 V DC / 20 A	1SVR 427 056 R2000	31500

Three phase monitoring relays

Single and three phase monitoring relays for phase failure detection

Type	Rated control supply voltage = measuring voltage	Order Code	M.R.P
With neutral monitoring			
CM-PBE	3x380-440 V AC, 220-240 V AC	1SVR 550 881 R9400	3210
Without neutral monitoring			
CM-PBE	3x380-440 V AC	1SVR 550 882 R9500	3210

Single and three phase monitoring relays for over / undervoltage and phase failure detection

Type	Rated control supply voltage = measuring voltage	Order Code	M.R.P
With neutral monitoring			
CM-PVE	3x320-460 V AC, 185-265 V AC	1SVR 550 870 R9400	3520
Without neutral monitoring			
CM-PVE	3x320-460 V AC	1SVR 550 871 R9500	3480

Three phase monitoring relays for phase sequence monitoring and phase failure detection

Type	Rated control supply voltage = measuring voltage	Order Code	M.R.P
CM-PFS	3x200-500 V AC	1SVR 430 824 R9300	3260

Three phase monitoring relays for over and undervoltage with adjustable threshold values

Type	Rated control supply voltage = measuring voltage	Order Code	M.R.P
CM-PVS.31	3x160-300 V AC	1SVR 630 794 R1300	10140
CM-PVS.41	3x300-500 V AC	1SVR 630 794 R3300	10140

Three phase monitoring relays for over and undervoltage with adjustable threshold values

Type	Rated control supply voltage = measuring voltage	Order Code	M.R.P
CM-PAS.31	3x160-300 V AC	1SVR 630 774 R1300	3460
CM-PAS.41	3x300-500 V AC	1SVR 630 774 R3300	9600

Multifunctional three phase monitoring relays

Type	Rated control supply voltage = measuring voltage	Order Code	M.R.P
With interrupted neutral monitoring			
CM-MPS.11	3x90-170 V AC	1SVR 630 885 R1300	Upon Request
CM-MPS.21	3x180-280 V AC	1SVR 630 885 R3300	
Without interrupted neutral monitoring			
CM-MPS.31	3x160-300 V AC	1SVR 630 884 R1300	Upon Request
CM-MPS.41	3x300-500 V AC	1SVR 630 884 R4300	

Three phase monitoring relays

Multifunctional three phase monitoring relays, automatic phase sequence correction and separate monitoring of over and undervoltage (window monitoring) configurable

Type	"Rated control supply voltage = measuring voltage"	Order Code	M.R.P
With interrupted neutral monitoring			
CM-MPS.23	3x180-280 V AC	1SVR 630 885 R4300	13060
Without interrupted neutral monitoring			
CM-MPS.43	3x300-500 V AC	1SVR 630 884 R4300	13070

Multifunctional three phase monitoring relays, automatic phase sequence correction and separate monitoring of over and undervoltage (window monitoring) configurable

Type	"Rated control supply voltage = measuring voltage"	Order Code	M.R.P
CM-MPN.52	3x350-580 V AC	1SVR 650 487 R8300	14860
CM-MPN.62	3x450-720 V AC	1SVR 650 488 R8300	
CM-MPN.72	3x530-820 V AC	1SVR 650 489 R8300	

Insulation monitors for unearthed supply systems

Type	Nominal voltage Un of the distribution system to be monitored	Rated control supply voltage	Order Code	M.R.P
CM-IWS.1	0-250 V AC / 0-300 V DC	24-240 V AC/DC	1SVR 630 660 R0100	Upon request
CM-IWS.2	0-400 V AC	24-240 V AC/DC	1SVR 630 670 R0200	

Type	Nominal voltage Un of the distribution system to be monitored	Rated control supply voltage	Order Code	M.R.P
CM-IWN.1	0-400 V AC / 0-600 V DC	24-240 V AC/DC	1SVR 650 660 R0200	Upon request
CM-IVN	0-690 V AC / 0-1000 V DC	"Passive device, no control supply voltage needed"	1SVR 650 669 R9400	

Thermistor motor protection relays

CM-MSE

Type	Rated control supply voltage	Order code	M.R.P
CM-MSE	24 V AC	1SVR 550 805 R9300	3830
	110-130 V AC	1SVR 550 800 R9300	2800
	220-240 V AC	1SVR 550 801 R9300	3820

CM-MSS (1), 1 c/o contact

Type	Rated control supply voltage	Order code	M.R.P
CM-MSS (1)	24 V AC/DC	1SVR 430 800 R9100	4360
	220-240 V AC	1SVR 430 801 R1100	2550

CM-MSE

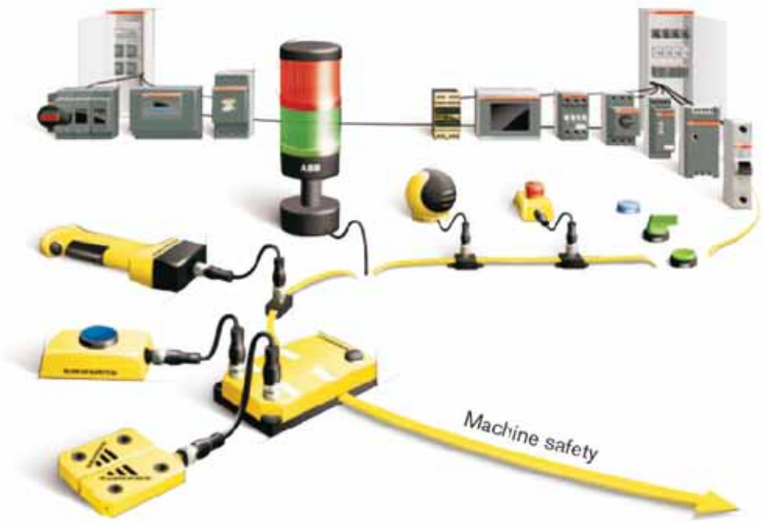
Type	Rated control supply voltage	Order code	M.R.P
CM-MSS (2)	24 V AC/DC	1SVR 430 810 R9300	4750
	24 V AC	1SVR 430 811 R9300	4750
	110-130 V AC	1SVR 430 811 R0300	4750
	220-240 V AC	1SVR 430 811 R1300	4750

Productivity and safety go hand in hand

Jokab Safety was acquired by ABB in march 2010. This gives us extra strength and a sales network in 120 countries. Our goal is to become even better at supporting you as a customer through cooperation within ABB Jokab Safety globally and locally.

The fact that the leading power and automation technology company, ABB, and a leader in machine safety, Jokab Safety, are joining forces means a lot more than just a new organisational chart. ABB has a huge footprint in the industry - from power supply to the control of each individual motor - and has been delivering reliable solutions for decades that boost productivity in the industry. The acquisition of Jokab Safety now means the last building block is in place. We can now offer our customers tailored, turnkey solutions where machine safety is an integral and value-enhancing component.

Since its inception in 1988, Jokab Safety has been adhering to the business concept of developing innovative products and solutions for machine safety. The company has supplied everything from individual safety components to fully installed protection systems for entire production lines and works on a daily basis with the practical application of safety requirements in combination with production requirements. Jokab Safety is also represented on a variety of international standards committees concerned with the safety of machinery which means that we have now added this very valuable experience and knowledge to our offering. Similarly, ABB has always been a pioneer and a representative for its business areas and a powerful voice in professional organisations and committees. All in all, this creates an enormous bank of knowledge and experience that we look forward to sharing with our customers. Productivity and safety are not contradictory terms. On the contrary, safety solutions that are properly executed and adapted from the beginning will increase productivity. A partner that can deliver integrated and well thought out turnkey solutions enables a production-friendly safety environment. By building up and upgrading safety solutions in existing environments in a smart way, the mode of production will not need to be adapted to meet the requirements that safety sets. Instead, this allows a system that is manufacturing-friendly and that takes into account the business and its productivity objectives.



Jokab Safety

Pluto Safety PLC
Pluto, Gateway, Profibus, DeviceNet, CANopen, Ethemet, Safe Encoder, IDFIX, program examples

Pluto AS-I
Pluto AS-I, Urax, Flex

Pluto Manager
Software for programming of Pluto

Vital and Tina safety systems
Vital, Tina and Connection examples

Light Curtains, Light grids, Light beams and Scanner
Focus, Spot, Look, Bjom, Focus Wet, Blanking programmer, Connection examples

Stop time measurement and machine diagnosis
Smart, Smart manager

Sensors/Switches
Eden, JSNY series, Magne, Dalton, Knox

Control devices
3-position device JSHD4, Two-handed control unit Safeball

Emergency stop devices
Inca, Smile, Smile Tina, Line emergency stop

Contacts rails/Bumpers/Safety mats

Fencing systems
Quick-Guard, Quick-Guard E, SafeCad, Roller doors

EC Declaration of Conformity

Jokab Safetys developments in 80's

Jokab Safetys first safety relay

Jokab Safetys first steel fencing system

Jokab Safetys developments in 90's

Timer reset and first light beam

Smallest safety relays
JSBT5 and JSBR4

Stop time
measurement

Quick-Guard aluminium
fencing system

Three-position
switch for robots

3-position
devices

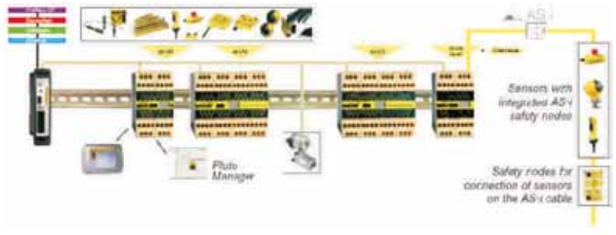
Safeball - ergonomic
control device

RT series universal relays

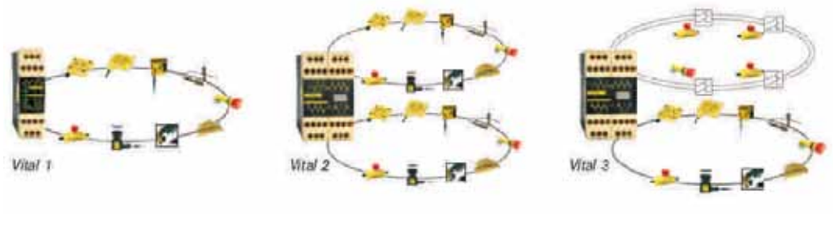
SafeCad for
Quick-Guard

Jokab Safetys developments in 2000

Pluto All-Master safety PLC



Vital with dynamic safety circuits



Non-contact sensor Eden, guard locks, Focus light beam, E-stops Inca and smile, Smart for machine diagnosis and three-position device with hand detection

Why arc protection?
With arc guard system™, reduces the negative consequences of an arc accident to a minimum.

Every day throughout the world, hundreds of people face serious injuries or death due to arc accidents. What's more, this is not restricted to countries with low safety standards. According to public data, one person dies each day in North America due to arc flash accidents. Several more are injured.

The four main reasons to invest in an arc guard system™

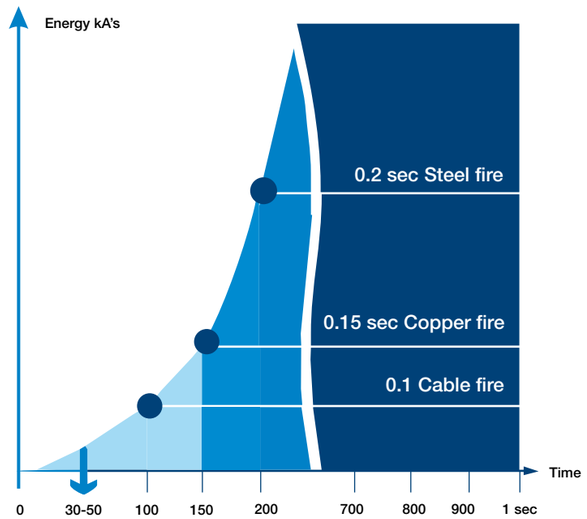
1. Save lives
2. Save equipment
3. Minimize downtime
4. Increase switchgear life

} Save money

In any plant, the risk of arc accidents can be reduced by the design of systems (mechanical and electrical) and the routines for working with electric equipment. The importance of safety has led ABB to develop 'arc-proof' switchgears, where the mechanical design as well as the choice of electrical components reduces both the risk of an arc accident and its consequences.

Unfortunately, these measures are most often not sufficient for two reasons;
1) Most accidents happen with the switchgear door open, which reduces the effects of mechanical protection, (2) Breaker protection is based on over-current only and often includes time delays. Reducing the consequences of arc faults is all about time (see chart). This is why the ABB TVOC-2 (Arc Guard System™) reacts in just a couple of milli-seconds, thereby over-ruling standard protection time delays when tripping breakers.

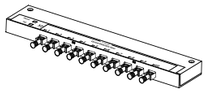
Safety is becoming more and more important. As legal and regulatory requirements increase, old equipment soon becomes out-of-date. Arc Guard System™ can help increase equipment safety and thereby prolong its life-cycle. Arc Guard System™ will not prevent the accident from happening – but it will significantly reduce the damage caused.

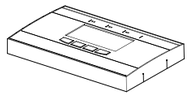


Total breaking time = ABB ArcGuard System™ + Breaker

Ordering details


Arc Monitor


Extension unit


HMI


Detector cable


CSU


Optical cable TVOC-2 – CSU

Supply voltage 100-240 V DC or AC 50-60 Hz

Description		Type	Order code	M.R.P.
Arc Monitor including one HMI and door mounting accessories		TVOC-2-240	1SFA 664 001 R1001	Upon request
Extension 10 optical inputs		TVOC-2-E1	1SFA 664 002 R1001	
HMI (Human machine interface) additional		TVOC-2-H1	1SFA 664 002 R1005	
Detectors				
Cable length	1 m	TVOC-2-DP1	1SFA 664 003 R1010	Upon request
Cable length	2 m	TVOC-2-DP2	1SFA 664 003 R1020	
Cable length	4 m	TVOC-2-DP4	1SFA 664 003 R1040	
Cable length	6 m	TVOC-2-DP6	1SFA 664 003 R1060	
Cable length	8 m	TVOC-2-DP8	1SFA 664 003 R1080	
Cable length	10 m	TVOC-2-DP10	1SFA 664 003 R1100	
Cable length	15 m	TVOC-2-DP15	1SFA 664 003 R1150	
Cable length	20 m	TVOC-2-DP20	1SFA 664 003 R1200	
Cable length	25 m	TVOC-2-DP25	1SFA 664 003 R1250	
Cable length	30 m	TVOC-2-DP30	1SFA 664 003 R1300	

Description		Type	Order code	
Current sensing unit		CSU	1SFA 663 002-A	Upon request
Optical cable between TVOC-2 arc monitor and current sensing unit				
Cable length	0.5 m			Upon request
Cable length	1 m	TVOC-1TO2-OP1	1SFA 664 004 R2010	
Cable length	2 m			
Cable length	4 m	TVOC-1TO2-OP4	1SFA 664 004 R2040	
Cable length	6 m	TVOC-1TO2-OP6	1SFA 664 004 R2060	
Cable length	8 m	TVOC-1TO2-OP8	1SFA 664 004 R2080	
Cable length	10 m	TVOC-1TO2-OP10	1SFA 664 004 R2100	
Cable length	15 m	TVOC-1TO2-OP15	1SFA 664 004 R2150	
Cable length	20 m	TVOC-1TO2-OP20	1SFA 664 004 R2200	
Cable length	25 m	TVOC-1TO2-OP25	1SFA 664 004 R2250	
Cable length	30 m	TVOC-1TO2-OP30	1SFA 664 004 R2300	

Pilot devices
Compact range

Order examples

Ex 1: Type CP1-10■ - 10, to order color red replace ■ with R: CP1-10 R-10

Ex 2: Order code 1SFA619100R1011 □

To order color red replace □ with 1: 1SFA619100R1011

Order codes

	Red	Green	Yellow	Blue	White	Black	Grey	Clear
Type Code ■	R	G	Y	L	W	B	U	C
Order code □	1	2	3	4	5	6	7	8

Bezel - How to order

Black - Standard

Chrome metal - Replace '**1**' with '**3**' in type and order codes

Bezel options	Type	Order code
Black plastic	CP(X)-**1**0X-XX	1SFA619 X0X R**1**0XX
Chrome metal	CP(X)-**3**0X-XX	1SFA619 X0X R**3**0XX

Flush Pushbutton					Extended Pushbutton			
● ● ● ● ○ ● ○	Type	Order code	Type	Order code	Type	Order code	Type	Order code
	Momentary		Maintained		Momentary		Maintained	
1 NO	CP1-10■-10	1SFA619100R101□	CP2-10■-10	1SFA619101R101□	CP3-10■-10	1SFA619102R101□	CP4-10■-10	1SFA619103R101□
2 NO	CP1-10■-20	1SFA619100R102□	CP2-10■-20	1SFA619101R102□	CP3-10■-10	1SFA619102R102□	CP4-10■-10	1SFA619103R102□
1 NC	CP1-10■-01	1SFA619100R104□	CP2-10■-01	1SFA619101R104□	CP3-10■-01	1SFA619100R104□	CP4-10■-01	1SFA619101R104□
2 NC	CP1-10■-02	1SFA619100R105□	CP2-10■-02	1SFA619101R105□	CP3-10■-02	1SFA619100R105□	CP4-10■-02	1SFA619101R105□
1 NO+1 NC	CP1-10■-11	1SFA619100R107□	CP2-10■-11	1SFA619101R107□	CP3-10■-11	1SFA619100R107□	CP4-10■-11	1SFA619101R107□

Pilot devices
Compact range

Illuminated pushbutton with integrated LED. Flush or extended lens*

● ● ●	24 V, AC/DC Momentary		110-130 V, AC/DC Momentary		220 V, AC/DC Momentary	
1 NO flush	CP1-11■-10	1SFA619100R111□	CP1-12■-10	1SFA619100R121□	CP1-13■-10	1SFA619100R131□
● 1 NC flush	CP1-11R-01	1SFA619100R1141	CP1-12R-01	1SFA619100R1241	CP1-13R-01	1SFA619100R1341
1 NO extended	CP3-11■-10	1SFA619102R111□	CP3-12■-10	1SFA619102R121□	CP3-13■-10	1SFA619102R131□
● 1 NC flush	CP3-11R-01	1SFA619102R1141	CP3-12R-01	1SFA619102R1241	CP3-13R-01	1SFA619102R1341
● ● ●	**24 V, AC/DC Maintained**		**110-130 V, AC/DC Maintained**		**220 V, AC/DC Maintained**	
1 NO flush	CP2-11■-10	1SFA619101R111□	CP2-12■-10	1SFA619101R121□	CP2-13■-10	1SFA619101R131□
● 1 NC flush	CP2-11R-01	1SFA619101R1141	CP2-12R-01	1SFA619101R1241	CP2-13R-01	1SFA619101R1341
1 NO extended	CP4-11■-10	1SFA619103R111□	CP4-12■-10	1SFA619103R121□	CP4-13■-10	1SFA619103R131□
● 1 NC flush	CP4-11R-01	1SFA619103R1141	CP4-12R-01	1SFA619103R1241	CP4-13R-01	1SFA619103R1341

Pilot light with integrated LED

● ● ● ● ○	24 V, AC/DC		110-130 V, AC		220 V, DC		220 V, AC	
	CL-502■	1SFA619402R502□	CL-513■	1SFA619402R513□	CL-520■	1SFA619402R520□	CL-523■	1SFA619402R523□

Selector switch

● ● ○	Maintained / Two Positions		Maintained / Two Positions		Momentary / Two Positions	
1 NO	C2SS1-10■-10	1SFA619200R101□	C2SS2-10■-10	1SFA619201R101□	C2SS3-10■-10	1SFA619202R101□
2 NO	C2SS1-10■-20	1SFA619200R102□	C2SS2-10■-20	1SFA619201R102□	C2SS3-10■-20	1SFA619202R102□
1 NO + 1 NC	C2SS1-10■-11	1SFA619200R107□	C2SS2-10■-11	1SFA619201R107□	C2SS3-10■-11	1SFA619202R107□
● ● ○	Maintained / Three Positions		Momentary / Three Positions		Momentary / Three Positions	
2 NO	C3SS1-10■-20	1SFA619210R102□	C3SS2-10■-20	1SFA619211R102□	C3SS3-10■-20	1SFA619212R102□
1 NO + 1 NC	C3SS1-10■-11	1SFA619210R107□	C3SS2-10■-11	1SFA619211R107□	C3SS3-10■-11	1SFA619212R107□

Pilot devices
Compact range

Compact product features

- 'All in one design"
- IP66, 67, 69K & UL Type 1, 3R, 4, 4X, 12, 13
- Easy mounting
- Reduced inventory levels
- Operator style identical to modular range
- Wiping action
- Metal and plastic bezel option

Emergency stop

●		Type	Order code	Type	Order code	Type	Order code
		Twist release		Pull release		Key release: Ronis 455, key code 71	
1 NC	Ø 30 mm	CE3T-10R-01	1SFA619500R1041				
2 NC	Ø 30 mm	CE3T-10R-02	1SFA619500R1051	CE3P-10R-02	1SFA619501R1051	CE3K1-10R-02	1SFA619502R1051
1 NO+1 NC	Ø 30 mm	CE3T-10R-011	1SFA619500R1071	CE3P-10R-11	1SFA619501R1071	CE3K1-10R-11	1SFA619502R1071
1 NC	Ø 40 mm	CE4T-10R-01	1SFA619550R1041				
2 NC	Ø 40 mm	CE4T-10R-02	1SFA619550R1051	CE4P-10R-02	1SFA619551R1051	CE4K1-10R-02	1SFA619552R1051
1 NO+1 NC	Ø 40 mm	CE4T-10R-011	1SFA619550R1071	CE4P-10R-11	1SFA619551R1071	CE4K1-10R-11	1SFA619552R1071

Pilot devices
Compact range

Machine stop							
●		Twist release		Pull release		Key release: Ronis 455, key code 71	
1NO+1NC	Ø 30 mm	CE3T-10B-11	1SFA619500R1076	CE3P-10B-11	1SFA619501R1076	CE3K-10B-11	1SFA619502R1076
1NO+1NC	Ø 40 mm	CE4T-10B-11	1SFA619550R1076	CE4P-10B-11	1SFA619551R1076	CE4K-10B-11	1SFA619552R1076

Mushroom			
● ● ● ●		Momentary	
1NO+1NC	Ø 40 mm	CPM3-10 ■ -11	1SFA619126R107 □

Assembled compact emergency stop enclosures		
1-seat plastic enclosure (yellow)		
■ □ Twist release. Red button 2 NC	CEPY1-1001	1SFA619821R1001
■ □ Pull release. Red button 2 NC	CEPY1-1002	1SFA619821R1002
Emergency stop enclosure with shroud		
■ □ Twist release. Red button 2 NC	CEPY1-2002	1SFA619821R2002
■ □ Pull release. Red button 2 NC	CEPY1-2001	1SFA619821R2001

Assembled compact machine stop enclosures		
1-seat plastic enclosure with black mushroom pushbutton (dark grey)		
■ □ Twist release. Black button 1 NO + 1 NC	CEP1-1001	1SFA619811R1001
■ □ Pull release. Black button 1 NO + 1 NC	CEP1-1002	1SFA619811R1002
Machine stop enclosure with shroud		
■ □ Twist release. Red button 2 NC	CEP1-2001	1SFA619811R2001
■ □ Pull release. Red button 2 NC	CEP1-2002	1SFA619811R2002

System pro M compact® – *New* Miniature Circuit Breakers
ABB's comprehensive range of MCB

The range of ABB line protection devices ranks amongst the most extensive on the market with a full range of innovative solutions for various applications, helping to optimise resources, reduce energy costs, boost productivity.

For all applications in residential,industrial and commercial installations ABB offers many functionalities like:
- protection and switching
- checking and monitoring
- control and programming

System Pro M
System ProM is a modular system developed by ABB which, is capable of meeting the requirements of the most modern and up-to-date installations for low voltage applications.

The system is based on two main criteria:
- Complete functionality
- Wide range of devices which leads to increased safety

for the user and greater diversification in command and load management.

Optimum sizing
The modular structure allows the internal structure of the switchboard to be used in the best possible way, reduces wiring operation and enhances functionality and aesthetics of the switchboards System proM offers a wide range of devices for basic functions like protection, command,measure and load management which characterise the low voltage electrical applications. Protection forms the basis of system proM which comprises of MCBs, RCCBs, RCBOs and a host of other modular devices. These miniature modular devices are technologically advanced, enable speedy installation and simplify maintenance. Each device in the System proM has been designed in accordance with strict criteria for safety and functionality to guarantee the the maximum operating safety even in the difficult environment conditions.
Quality and reliability are built into every device to ensure total performance satisfaction, even in the most demanding applications.

The System Pro M compact range
- Miniature Circuit Breakers
- Residual Current Devices
  a) Residual current circuit breaker(RCCBs)
  b) RCD blocks
  c) Residual current circuit breaker with overcurrent protection(RCBOs)
  d) Residual Current relays with external toroid
- Auxiliary elements and various accessories
- Surge Protection devices
- Command devices
- Load management devices
- Measurement devices

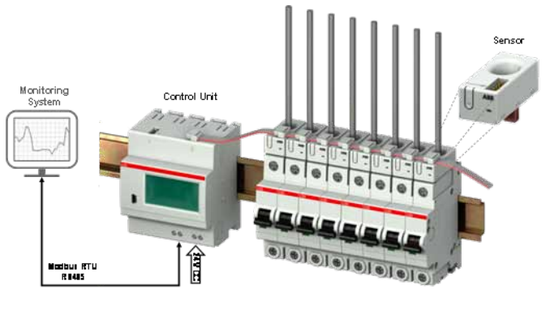
Perfect protection and measuring solutions for power distribution units in modern data centers

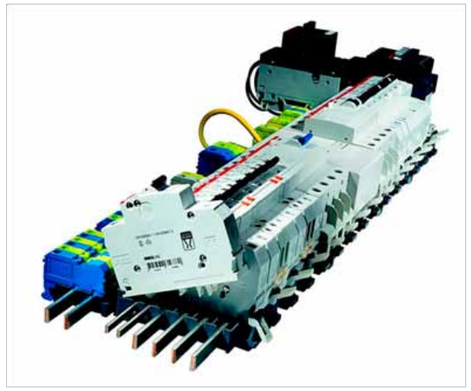
Measurement in power distribution units has never been so compact and perfectly integrated. It is finallypossible to moni¬tor the individual circuits of an installation.

The CMS is the perfect solution for areas where high system availability is required. This includes industrial facilities, banks, insurance companies or public buildings such as hospitals or airports, which depend heavily on their electronic systems operating smoothly. Failures here lead to major financial losses. The sensors are the most important part of the system and their compact size is impressive. The sensorscan be easily installed anywhere and they do not cause any problems during installation or commissioning.
Whether AC, DC or mixed current, CMS sensors capture all types of current within a measurement range of 0–80 A (TRMS). Even upper sidebands in the signal trace are captured.

Every sensor has its own signal processing microprocessor, meaning measurement data is transmitted digitally via the bus interface to the controlunit.

World's first pluggable socket sys¬tem, SMISSLINE TP ensures that load-free devices and components can be snapped on and off under voltage without the need for additional personal protective equipment to guard against elec¬trical hazards. That opens up completely new prospects for you when it comes to installation, operation and flexibility. The system complies with IEC 60439. Load sharing becomes extremely simple with unique feature of slider to change phases. Plug-in MCB's provides excellent flexibility for maintenance personnel and less downtime in critical application. Pluggable busbar system is also suitable for fixed type of MCB's.





Modular enclosure solutions for power distribution and motor protection

Features	ArTu
Sheet steel fabrication	In-house ABB
Sheet steel material	Galvanised iron with Aluzinc coating
Construction type	Bolted/Modular/Kit form
Ingress protection	Up to IP65
Painting	By ABB
Configuration software	Yes
Type test Complying to IEC Standards	Yes
Impact test according to IEC 62262	Yes
Glazed doors	Yes
Bus bar supports (Critical element)	Supplied by ABB with same product where type test is done
Feeder rating interchangeability	Due modular and bolted design, site interchangeability is simple

Features	Gemini
Enclosure material	Polycarbonate
Insulation Voltage	1000V AC/ 1500V DC
Insulation class	II
Ingress protection	IP66
Impact test according to IEC 62262	Yes (IK10)
Glazed doors	Opaque/Glazed
Number DIN Modules	24 modules to 216 Modules
Operating temperature	-25˚C to 100˚C
Glow wire test	750˚C

Earth Leakage Relay

- Frequency filtering ensures increased immunity to High frequency currents and avoid unwanted tripping
- Wide adjustable setting from 30mA to 30A
- Total selectivity in case of insulation fault in the system
- Performs RMS measurement for highest accuracy
- Complies with latest international standards IEC 60947-2 Annex M/IEC 61543

The new range of ELR front panel residual current relays hasbeen tested in combination with MCB's (S200 range) and MCCB's (Tmaxseries) conforming with IEC/EN 60947-2 Annex M.

Measurement Solutions

ABB offers wide range of Metering solutions for Power measurement applications. Metering solutions offers TRMS measurement parameters. Meters also offers versatile communication options like Modbus, Profibus, M-Bus etc.

MCB SH 200
The details make the difference

A range designed to ensure efficiency and protection

25 mm² cage terminals, a well proven and reliable technology.

IP20 - finger safety.

Scratch and solvent resistant marking due to laser printing. Easy identification of the products in case of maintenance or replacements.

Laser printed EAN code. Easy integration into merchandise management systems and quick identification of devices.

Easy product coding - easy identification - easy life. Basic technical information already integrated into the name.

Don't loose what's important for you - captive screaws.

Wiring diagram and basic technical specification printed on the front of the MCB. Save your time - all important data available right away.

SH200M Series MCB
Technical features

Electrical Data	SH200 M
Standards	IS IEC 60898-1
Poles	1P, 2P, 3P, 4P, 1P +N, 3P +N
Tripping Characteristics	B, C, D
Rated Curent	0.5A - 63 A
Rated Voltage	1P : 230 V AC 1P + N : 230 V AC 2…4P : 400 V AC 3P + N : 400 V AC
Insulation Voltage	250 V AC (Phase to Ground) 440 V AC (Phase to Phase)
Max Operating Voltage	1P: 253 V AC 2…4P : 440 V AC
Min Operating Voltage	12 V AC
Rated Frequency	50/60 Hz
Rated Short Circuit Capacity	10kA
Energy Limiting Class	3
Over Voltage Category	III
Pollution Degree	2
Rated Impulse withstand Voltage	4kV (Test Voltage 6.2kV at Sea Level, 5kV at 2,000 m)
Dielectric Test Voltage	2kV (50/60 Hz, 1 min)

Housing material

By using the state-of-the-art housing material, ABB is taking care of the environment. With the latest generation of thermoplastics it's possible to recycle the MCBs – especially the thermoplastic housing-material can be re-used. By using the latest generation of thermoplastics the material stability of all Compact Home MCBs is improved. Residential MCBs are free of halogens – no environmental pollution.

Laser printing

All printings of the Compact Home MCBs, like the approvals on the dome, the product identification, are printed by a laser. The laser printing ensures a friction, scratch and solvent resistant marking on the MCBs. Easy identification of the products in case of maintenance or replacements due to safe laser printing.

Connection of compact home SH Series & Compact Pro M S Series

Compatibility with System pro M compact is given in all kind of variations like insertion of one System pro M compact MCB into an Installation with Compact Home components and Compact Home busbars. Also the combination of one Compact Home MCB with System pro M compact components and System pro M compact busbar are compatible.

Terminals

The MCBs Compact Home are equipped with 25 mm2 cage terminals, a well proven and reliable technology. The cross wiring can easily be done by inserting the Compact Home busbars and then the incoming wires into one of the MCB's terminals. The terminals accept Compact Home busbars and conductors up to 16 mm2 together.

CPI: Contact Position Indicator

All Compact Home MCBs are suited with a contact position indication (CPI) on the toggle. You can easily identify, if the MCB is in ON or OFF position –easy and safe maintenance work is possible.

SH200 M - MCBs, C Characteristics - 10 kA

Single pole

Product Code	Rating	MRP (INR)	Packing
SH201M-C 0.5	0.5A	325	1/12
SH201M-C 1	1A	325	1/12
SH201M-C 1.6	1.6A	325	1/12
SH201M-C 2	2A	325	1/12
SH201M-C 3	3A	325	1/12
SH201M-C 4	4A	325	1/12
SH201M-C 6	6A	218	1/12
SH201M-C 8	8A	218	1/12
SH201M-C 10	10A	218	1/12
SH201M-C 16	16A	218	1/12
SH201M-C 20	20A	218	1/12
SH201M-C 25	25A	218	1/12
SH201M-C 32	32A	218	1/12
SH201M-C 40	40A	449	1/12
SH201M-C 50	50A	455	1/12
SH201M-C 63	63A	455	1/12

Single pole & neutral

Product Code	Rating	MRP (INR)	Packing
SH201M-C 0.5 NA	0.5A	890	1/6
SH201M-C 1 NA	1A	890	1/6
SH201M-C 1.6 NA	1.6A	890	1/6
SH201M-C 2 NA	2A	890	1/6
SH201M-C 3 NA	3A	890	1/6
SH201M-C 4 NA	4A	890	1/6
SH201M-C 6 NA	6A	635	1/6
SH201M-C 8 NA	8A	635	1/6
SH201M-C 10 NA	10A	635	1/6
SH201M-C 16 NA	16A	635	1/6
SH201M-C 20 NA	20A	635	1/6
SH201M-C 25 NA	25A	635	1/6
SH201M-C 32 NA	32A	635	1/6
SH201M-C 40 NA	40A	1,010	1/6
SH201M-C 50 NA	50A	1,020	1/6
SH201M-C 63 NA	63A	1,020	1/6

Double pole

Product Code	Rating	MRP (INR)	Packing
SH202M-C 0.5	0.5A	895	1/6
SH202M-C 1	1A	895	1/6
SH202M-C 1.6	1.6A	895	1/6
SH202M-C 2	2A	895	1/6
SH202M-C 3	3A	895	1/6
SH202M-C 4	4A	895	1/6
SH202M-C 6	6A	638	1/6
SH202M-C 8	8A	638	1/6
SH202M-C 10	10A	638	1/6
SH202M-C 16	16A	638	1/6
SH202M-C 20	20A	638	1/6
SH202M-C 25	25A	638	1/6
SH202M-C 32	32A	638	1/6
SH202M-C 40	40A	1,020	1/6
SH202M-C 50	50A	1,030	1/6
SH202M-C 63	63A	1,030	1/6

Triple pole

Product Code	Rating	MRP (INR)	Packing
SH203M-C 0.5	0.5A	1,350	1/4
SH203M-C 1	1A	1,350	1/4
SH203M-C 1.6	1.6A	1,350	1/4
SH203M-C 2	2A	1,350	1/4
SH203M-C 3	3A	1,350	1/4
SH203M-C 4	4A	1,350	1/4
SH203M-C 6	6A	1,030	1/4
SH203M-C 8	8A	1,030	1/4
SH203M-C 10	10A	1,030	1/4
SH203M-C 16	16A	1,030	1/4
SH203M-C 20	20A	1,030	1/4
SH203M-C 25	25A	1,030	1/4
SH203M-C 32	32A	1,030	1/4
SH203M-C 40	40A	1,580	1/4
SH203M-C 50	50A	1,590	1/4
SH203M-C 63	63A	1,590	1/4

Triple pole & neutral

Product Code	Rating	MRP (INR)	Packing
SH203M-C 0.5 NA	0.5A	1,725	1/3
SH203M-C 1 NA	1A	1,725	1/3
SH203M-C 1.6 NA	1.6A	1,725	1/3
SH203M-C 2 NA	2A	1,725	1/3
SH203M-C 3 NA	3A	1,725	1/3
SH203M-C 4 NA	4A	1,725	1/3
SH203M-C 6 NA	6A	1,375	1/3
SH203M-C 8 NA	8A	1,375	1/3
SH203M-C 10 NA	10A	1,375	1/3
SH203M-C 16 NA	16A	1,375	1/3
SH203M-C 20 NA	20A	1,375	1/3
SH203M-C 25 NA	25A	1,375	1/3
SH203M-C 32 NA	32A	1,375	1/3
SH203M-C 40 NA	40A	2,025	1/3
SH203M-C 50 NA	50A	2,035	1/3
SH203M-C 63 NA	63A	2,035	1/3

Four pole

Product Code	Rating	MRP (INR)	Packing
SH204M-C 0.5	0.5A	1,735	1/3
SH204M-C 1	1A	1,735	1/3
SH204M-C 1.6	1.6A	1,735	1/3
SH204M-C 2	2A	1,735	1/3
SH204M-C 3	3A	1,735	1/3
SH204M-C 4	4A	1,735	1/3
SH204M-C 6	6A	1,380	1/3
SH204M-C 8	8A	1,380	1/3
SH204M-C 10	10A	1,380	1/3
SH204M-C 16	16A	1,380	1/3
SH204M-C 20	20A	1,380	1/3
SH204M-C 25	25A	1,380	1/3
SH204M-C 32	32A	1,380	1/3
SH204M-C 40	40A	2,030	1/3
SH204M-C 50	50A	2,040	1/3
SH204M-C 63	63A	2,040	1/3

SH200 M - MCBs, D Characteristics - 10 kA

Single pole

Product Code	Rating	MRP (INR)	Packing
SH201M-D 0.5	0.5A	328	1/12
SH201M-D 1	1A	328	1/12
SH201M-D 1.6	1.6A	328	1/12
SH201M-D 2	2A	328	1/12
SH201M-D 3	3A	328	1/12
SH201M-D 4	4A	328	1/12
SH201M-D 6	6A	280	1/12
SH201M-D 8	8A	280	1/12
SH201M-D 10	10A	280	1/12
SH201M-D 16	16A	280	1/12
SH201M-D 20	20A	280	1/12
SH201M-D 25	25A	280	1/12
SH201M-D 32	32A	280	1/12
SH201M-D 40	40A	485	1/12
SH201M-D 50	50A	495	1/12
SH201M-D 63	63A	495	1/12

Double pole

Product Code	Rating	MRP (INR)	Packing
SH202M-D 0.5	0.5A	896	1/6
SH202M-D 1	1A	896	1/6
SH202M-D 1.6	1.6A	896	1/6
SH202M-D 2	2A	896	1/6
SH202M-D 3	3A	896	1/6
SH202M-D 4	4A	896	1/6
SH202M-D 6	6A	675	1/6
SH202M-D 8	8A	675	1/6
SH202M-D 10	10A	675	1/6
SH202M-D 16	16A	675	1/6
SH202M-D 20	20A	675	1/6
SH202M-D 25	25A	675	1/6
SH202M-D 32	32A	675	1/6
SH202M-D 40	40A	1,080	1/6
SH202M-D 50	50A	1,090	1/6
SH202M-D 63	63A	1,090	1/6

Triple pole

Product Code	Rating	MRP (INR)	Packing
SH203M-D 0.5	0.5A	1,365	1/4
SH203M-D 1	1A	1,365	1/4
SH203M-D 1.6	1.6A	1,365	1/4
SH203M-D 2	2A	1,365	1/4
SH203M-D 3	3A	1,365	1/4
SH203M-D 4	4A	1,365	1/4
SH203M-D 6	6A	1,075	1/4
SH203M-D 8	8A	1,075	1/4
SH203M-D 10	10A	1,075	1/4
SH203M-D 16	16A	1,075	1/4
SH203M-D 20	20A	1,075	1/4
SH203M-D 25	25A	1,075	1/4
SH203M-D 32	32A	1,075	1/4
SH203M-D 40	40A	1,675	1/4
SH203M-D 50	50A	1,685	1/4
SH203M-D 63	63A	1,685	1/4

Four pole

Product Code	Rating	MRP (INR)	Packing
SH204M-D 0.5	0.5A	1,742	1/3
SH204M-D 1	1A	1,742	1/3
SH204M-D 1.6	1.6A	1,742	1/3
SH204M-D 2	2A	1,742	1/3
SH204M-D 3	3A	1,742	1/3
SH204M-D 4	4A	1,742	1/3
SH204M-D 6	6A	1,430	1/3
SH204M-D 8	8A	1,430	1/3
SH204M-D 10	10A	1,430	1/3
SH204M-D 16	16A	1,430	1/3
SH204M-D 20	20A	1,430	1/3
SH204M-D 25	25A	1,430	1/3
SH204M-D 32	32A	1,430	1/3
SH204M-D 40	40A	2,100	1/3
SH204M-D 50	50A	2,115	1/3
SH204M-D 63	63A	2,115	1/3

System pro M compact® – S200 series MCB
A range designed to ensure efficiency and protection

Twin terminal for separate feeding of busbar and conductor

IP20 - finger safety.

Easy identification of the product and highly resistant laser marking.

Safe your time – all important data available right away.

Easy product name, easy identification, easy life.

Quick identification thanks to laser printed EAN marking.

Contact position indication

Captive screws: don't loose what's important for you.

Whatever your application need is – applicable with a wide range of accessories.

Contact position indication
All System pro M compact® MCBs are suited with a contact position indication (CPI) on the toggle. You can easily identify, if the MCB is in the ON or the OFF position – **easy and safe maintenance work is possible.**

Approvals printed on the dome
S 200 and S 200 M MCBs comply to IEC/EN 60898 and IEC/EN 60947 and carry all relevant approval marks for each market and segment they are destined to. The certification markings are also printed on the dome of the MCB. Thus make it possible to see the markings also in the mounted position.
For control and acceptance procedure – certification marks visible on fitted devices on the dome.

Housing material
By using the state-of-the-art housing material, ABB is taking care of the environment. With the latest generation of thermoplastics it's possible to recycle the MCBs – especially the thermoplastic housing-material can be re-used. By using the latest generation of thermoplastics the material stability of all System pro M compact® MCBs is improved. **S200 and S200M are 100% free of halogens – no environmental pollution.**

Laser printing
All printings of the S 200 and S 200 M MCBs, like the approvals on the dome and the product identification, are printed by a laser. The laser printing ensures a friction, scratch and solvent resistant marking on the MCBs.
Easy identification of the products in case of maintenance or replacements due to safe laser printing.

Removal of the devices
Special quick fastening for an easy removal of the devices from the assembly pressing upwards, both for MCBs S 200/S 200 M and RCCBs F 200.

IP 20 - finder safe terminals
The System pro M compact® MCB's are equiped with 35 mm² + 10 mm² cylinder lift twin terminals, a well proven and reliable technology - designed for sopisticated industrial use.
The cross wiring can easily be done by inserting the System pro M compact® busbars into the rear terminal part and then the incoming wires into the front part of the terminal.

System pro M compact® – S200 series MCB
Technical features

				S 200	S 200 M
General Data	Standards			IEC/EN 60898-1, IEC/EN 60947-2 UL 1077, CSA 22.2 No. 235	IEC/EN 60898-1, IEC/EN 60947-2 -
	Poles			1P, 2P, 3P, 4P, 1P+N, 3P+N	
	Tripping characteristics			B, C	
	Rated current I_n	A		6…40 A	
	Rated frequency f	Hz		50 / 60 Hz	
	Rated insulation voltage U_i acc. to IEC/EN 60664-1	V		250 V AC (phase to groud), 500 V AC (phase to phase)	
	Overvoltage category			III	
	Pollution degree			3	
Data acc. to IEC/EN 60898-1	Rated operational voltage U_n	V		1P: 230/400 V AC; 1P+N: 230 V AC ; 2...4P: 400 V AC; 3P+N: 400 V AC	
	Max. power frequency recovery voltage (U_{max})	V		1P: 253 V AC; 1P+N: 253 V AC; 2P: 440 V AC; 3...4P: 440 V AC; 3P+N: 440 V AC; 1P: 72 V DC; 2P: 125 V DC	
	Min. operating voltage	V		12 V AC - 12 V DC	
	Rated short-circuit capacity I_{cn}	kA		6 kA	10 kA
	Energy limiting class (B, C up to 40 A)			3	
	Rated impulse withstand voltage $U_{imp.}$ (1.2/50µs)	kV		4 kV (test voltage 6.2kV at sea level, 5kV at 2,000m)	
	Dielectric test voltage	kV		2 kV (50 / 60Hz, 1 min.)	
	Reference temperature for tripping characteristics	°C		B, C: 30°C	
	Electrical endurance	ops.		In < 32A: 20,000 ops (AC), In ≥ 32A: 10,000 ops. (AC); 1,000 ops. (DC); 1 cycle (2s - ON, 13s - OFF, In ≤ 32A), 1 cycle (2s - ON, 28s - OFF, In > 32A)	
Data acc. to IEC/EN 60947-2	Rated operational voltage U_n	V		1P: 230 V AC; 1P+N: 230 V AC; 2...4P: 400 V AC; 3P+N: 400 V AC	
	Max. power frequency recovery voltage (U_{max})	V		1P: 253 V AC; 1P+N: 253 V AC; 2P: 440 V AC; 3...4P: 440 V AC; 3P+N: 440 V AC; 1P: 72 V DC; 2P: 125 V DC	
	Min. operating voltage	V		12 V AC - 12 V DC	
	Rated ultimate short-circuit breaking capacity I_{cu}	kA		10 kA	≤ 40 A: 15 kA 50, 63 A: 10 kA
	Rated service short-circuit breaking capacity I_{cs}	kA		7.5 kA	≤ 40 A: 11.2 kA 50, 63 A: 7.5 kA
	Rated impulse withstand voltage $U_{imp.}$ (1.2/50µs)	kV		4 kV (test voltage 6.2kV at sea level, 5kV at 2,000m)	
	Dielectric test voltage	kV		2 kV (50 / 60Hz, 1 min.)	
	Reference temperature for tripping characteristics	°C		B, C: 55°C	
	Electrical endurance	ops.		In < 32A: 20,000 ops (AC), In ≥ 32A: 10,000 ops. (AC); 1,000 ops. (DC); 1 cycle (2s - ON, 13s - OFF, In ≤ 32A), 1 cycle (2s - ON, 28s - OFF, In > 32A)	
Data acc. to UL / CSA	Rated voltage	V		480Y / 277 V AC	-
	Rated interrupting capacity acc. to UL 1077	kA		6 kA	-
	Application			Suppl. prot. for general use. Application Codes: TC2, OL0, SC: U1	-
	Reference temperature for tripping characteristics	°C		B, C: 30°C	-
	Electrical endurance	ops.		6,000 ops (AC), 6,000 ops. (DC); 1 cycle (1s - ON, 9s - OFF)	
Mechanical Data	Housing			Insulation group I, RAL 7035	
	Toggle			Insulation group II, black, sealable	
	Contact position indication			Marking on toggle (I ON / 0 OFF)	
	Protection degree acc. to EN 60529			IP20*, IP40 in enclosure with cover	
	Mechanical endurance	ops.		20,000 ops.	
	Shock resistance acc. to IEC/EN 60068-2-27			30 g - 3 shocks - 11 ms	
	Vibration resistance acc. to IEC/EN 60068-2-6			5g - 20 cycles at 5…150…5 Hz with load 0.8 I_n	
	Environmental conditions (damp heat cyclic) acc. to IEC/EN 60068-2-30	°C/RH		28 cycles with 55°C/90-96% and 25°C/95-100%	
	Ambient temperature	°C		-25 … +55°C	
	Storage temperature	°C		-40 … +70°C	
Installation	Terminal			Failsafe bi-directional cylinder-lift terminal	
	Cross-section of conductors (top / bottom)	mm²		25 mm² / 25 mm²	
		AWG		18 - 4 AWG	-
	Cross-section of busbars (top / bottom)	mm²		10 mm² / 10 mm²	
		AWG		18 - 8 AWG	-
	Torque	Nm		2.8 Nm	
		in-lbs.		25 in-lbs.	-
	Screwdriver			No. 2 Pozidrive	
	Mounting			On DIN rail 35 mm acc. to EN 60715 by fast clip	
	Mounting position			any	
	Supply			optional	
Dimensions and weight	Mounting dimensions acc. to DIN 43880			Mounting dimension 1	
	Pole dimensions (H x D x W)	mm		88 x 69 x 17.5 mm	
	Pole weight	g		ca. 125 g	
Combination with aux. elements	Auxiliary contact			Yes	
	Signal contact			Yes	
	Shunt trip			Yes	
	Undervoltage release			Yes	
	Motor Operating Device			Yes	

* Also fulfilling the requirement acc. to the protection degree IPXXB

S200M - MCBs, C Characteristics* - 10 kA

Single pole

Product Code	Rating	MRP (INR)	Packing
S201M-D 0.5	0.5A	345	1/12
S201M-C 1	1A	345	1/12
S201M-C 1.6	1.6A	345	1/12
S201M-C 2	2A	345	1/12
S201M-C 3	3A	345	1/12
S201M-C 4	4A	345	1/12
S201M-C 6	6A	230	1/12
S201M-C 8	8A	230	1/12
S201M-C 10	10A	230	1/12
S201M-C 16	16A	230	1/12
S201M-C 20	20A	230	1/12
S201M-C 25	25A	230	1/12
S201M-C 32	32A	230	1/12
S201M-C 40	40A	480	1/12
S201M-C 50	50A	490	1/12
S201M-C 63	63A	490	1/12

Single pole & neutral

S201M-C 0.5 NA	0.5A	925	1/6
S201M-C 1 NA	1A	925	1/6
S201M-C 1.6 NA	1.6A	925	1/6
S201M-C 2 NA	2A	925	1/6
S201M-C 3 NA	3A	925	1/6
S201M-C 4 NA	4A	925	1/6
S201M-C 6 NA	6A	660	1/6
S201M-C 8 NA	8A	660	1/6
S201M-C 10 NA	10A	660	1/6
S201M-C 16 NA	16A	660	1/6
S201M-C 20 NA	20A	660	1/6
S201M-C 25 NA	25A	660	1/6
S201M-C 32 NA	32A	660	1/6
S201M-C 40 NA	40A	1,080	1/6
S201M-C 50 NA	50A	1,090	1/6
S201M-C 63 NA	63A	1,090	1/6

Double pole

S202M-C 0.5	0.5A	940	1/6
S202M-C 1	1A	940	1/6
S202M-C 1.6	1.6A	940	1/6
S202M-C 2	2A	940	1/6
S202M-C 3	3A	940	1/6
S202M-C 4	4A	940	1/6
S202M-C 6	6A	676	1/6
S202M-C 8	8A	676	1/6
S202M-C 10	10A	676	1/6
S202M-C 16	16A	676	1/6
S202M-C 20	20A	676	1/6
S202M-C 25	25A	676	1/6
S202M-C 32	32A	676	1/6
S202M-C 40	40A	1,090	1/6
S202M-C 50	50A	1,100	1/6
S202M-C 63	63A	1,100	1/6

Triple Pole

Product Code	Rating	MRP (INR)	Packing
S203M-C 0.5	0.5A	1,430	1/4
S203M-C 1	1A	1,430	1/4
S203M-C 1.6	1.6A	1,430	1/4
S203M-C 2	2A	1,430	1/4
S203M-C 3	3A	1,430	1/4
S203M-C 4	4A	1,430	1/4
S203M-C 6	6A	1,085	1/4
S203M-C 8	8A	1,085	1/4
S203M-C 10	10A	1,085	1/4
S203M-C 16	16A	1,085	1/4
S203M-C 20	20A	1,085	1/4
S203M-C 25	25A	1,085	1/4
S203M-C 32	32A	1,085	1/4
S203M-C 40	40A	1,650	1/4
S203M-C 50	50A	1,675	1/4
S203M-C 63	63A	1,675	1/4

Triple Pole & Neutral

S203M-C 0.5 NA	0.5A	1,810	1/3
S203M-C 1 NA	1A	1,810	1/3
S203M-C 1.6 NA	1.6A	1,810	1/3
S203M-C 2 NA	2A	1,810	1/3
S203M-C 3 NA	3A	1,810	1/3
S203M-C 4 NA	4A	1,810	1/3
S203M-C 6 NA	6A	1,440	1/3
S203M-C 8 NA	8A	1,440	1/3
S203M-C 10 NA	10A	1,440	1/3
S203M-C 16 NA	16A	1,440	1/3
S203M-C 20 NA	20A	1,440	1/3
S203M-C 25 NA	25A	1,440	1/3
S203M-C 32 NA	32A	1,440	1/3
S203M-C 40 NA	40A	2,110	1/3
S203M-C 50 NA	50A	2,125	1/3
S203M-C 63 NA	63A	2,125	1/3

Four Pole

S204M-C 0.5	0.5A	1,820	1/3
S204M-C 1	1A	1,820	1/3
S204M-C 1.6	1.6A	1,820	1/3
S204M-C 2	2A	1,820	1/3
S204M-C 3	3A	1,820	1/3
S204M-C 4	4A	1,820	1/3
S204M-C 6	6A	1,460	1/3
S204M-C 8	8A	1,460	1/3
S204M-C 10	10A	1,460	1/3
S204M-C 16	16A	1,460	1/3
S204M-C 20	20A	1,460	1/3
S204M-C 25	25A	1,460	1/3
S204M-C 32	32A	1,460	1/3
S204M-C 40	40A	2,130	1/3
S204M-C 50	50A	2,150	1/3
S204M-C 63	63A	2,150	1/3

* These products will be available fom May 2013

S200M - MCBs, D Characteristics* - 10 kA

Product Code	Rating	MRP (INR)	Packing
Single pole			
S201M-D 0.5	0.5A	375	1/12
S201M-D 1	1A	375	1/12
S201M-D 1.6	1.6A	375	1/12
S201M-D 2	2A	375	1/12
S201M-D 3	3A	375	1/12
S201M-D 4	4A	375	1/12
S201M-D 6	6A	310	1/12
S201M-D 8	8A	310	1/12
S201M-D 10	10A	310	1/12
S201M-D 16	16A	310	1/12
S201M-D 20	20A	310	1/12
S201M-D 25	25A	310	1/12
S201M-D 32	32A	310	1/12
S201M-D 40	40A	540	1/12
S201M-D 50	50A	550	1/12
S201M-D 63	63A	550	1/12

Product Code	Rating	MRP (INR)	Packing
Double pole			
S202M-D 0.5	0.5A	1,030	1/6
S202M-D 1	1A	1,030	1/6
S202M-D 1.6	1.6A	1,030	1/6
S202M-D 2	2A	1,030	1/6
S202M-D 3	3A	1,030	1/6
S202M-D 4	4A	1,030	1/6
S202M-D 6	6A	745	1/6
S202M-D 8	8A	745	1/6
S202M-D 10	10A	745	1/6
S202M-D 16	16A	745	1/6
S202M-D 20	20A	745	1/6
S202M-D 25	25A	745	1/6
S202M-D 32	32A	745	1/6
S202M-D 40	40A	1,190	1/6
S202M-D 50	50A	1,200	1/6
S202M-D 63	63A	1,200	1/6

Product Code	Rating	MRP (INR)	Packing
Triple pole			
S203M-D 0.5	0.5A	1,570	1/4
S203M-D 1	1A	1,570	1/4
S203M-D 1.6	1.6A	1,570	1/4
S203M-D 2	2A	1,570	1/4
S203M-D 3	3A	1,570	1/4
S203M-D 4	4A	1,570	1/4
S203M-D 6	6A	1,190	1/4
S203M-D 8	8A	1,190	1/4
S203M-D 10	10A	1,190	1/4
S203M-D 16	16A	1,190	1/4
S203M-D 20	20A	1,190	1/4
S203M-D 25	25A	1,190	1/4
S203M-D 32	32A	1,190	1/4
S203M-D 40	40A	1,880	1/4
S203M-D 50	50A	1,900	1/4
S203M-D 63	63A	1,900	1/4

Product Code	Rating	MRP (INR)	Packing
Four pole			
S204M-D 0.5	0.5A	1,980	1/3
S204M-D 1	1A	1,980	1/3
S204M-D 1.6	1.6A	1,980	1/3
S204M-D 2	2A	1,980	1/3
S204M-D 3	3A	1,980	1/3
S204M-D 4	4A	1,980	1/3
S204M-D 6	6A	1,590	1/3
S204M-D 8	8A	1,590	1/3
S204M-D 10	10A	1,590	1/3
S204M-D 16	16A	1,590	1/3
S204M-D 20	20A	1,590	1/3
S204M-D 25	25A	1,590	1/3
S204M-D 32	32A	1,590	1/3
S204M-D 40	40A	2,300	1/3
S204M-D 50	50A	2,320	1/3
S204M-D 63	63A	2,320	1/3

* These products will be available fom May 2013

RCCB F 200
The details make the difference

A range designed to ensure efficiency and protection

Bi-directional cylindrical terminal ensure higher safety of connecting operations, making them easier.

Test pushbutton to verify the correct functioning of the device.

Contact position indicator (CPI): to always know the status of the contacts (red: closed contacts; green: open contacts) independently on the toggle position

Information on the device are laser printed to make them clearly visible and long lasting.

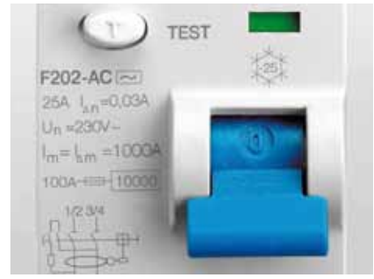
Laser-marked order code on the front to make easier future orders.

Two terminals are available, the fore one for cables up to 25 mm^2, the back one for cables up to 10 mm^2 or for busbars.

RCCBs F200 can be used in ambient conditions where the temperature of the surrounding atmosphere has values between -25°C (snowflake laser printed on the front of the device) and +55°C.

The availability of two terminals offers different connection solutions thanks to the possibility to connect two indipendent cables in the same device: the second terminal can be used for an auxiliary circuit or for the supply of devices with small section cables without connecting them together with the main circuit.

All the safety ensured by the international marks: approvals' marking in a visible area, even if RCDs is installed and with the panel-door closed.



High performances:
- rated breaking capacity and rated residual breaking capacity laser printed on the device:
Im=IΔm= 1000 A
- coordination with a 100 A rated current SCPD (short-circuit protective device) = 10000 A.

The F 202 can be coupled with the autoreclosing unit F2C-ARH in order to ensure continuity of service for the whole installation of your home avoiding lack of supply.

(RCCBs) FH200 Series
Technical features table for residual current circuit breakers

				FH200		F200	
Standards				IEC/EN 61008			
Electrical features							
Type (wave form of the earth leakage sensed)				AC	A	AC S	A S
Poles				2P, 4P		2P, 4P	
Rated current I_n		A		25, 40, 63		40, 63	
Rated sensitivity $I_{\Delta n}$		A		30, 100, 300	30	300	
Rated voltage U_e		V		230/400 - 240/415		230/400 - 240/415	
Insulation voltage U_i		V		500		500	
Max. operating voltage of circuit test		V		254		254	
Min. operating voltage of circuit test		V		110		110	
Rated frequency		Hz		50..60		50..60	
Rated conditional short-circuit current $I_{nc}=I_{\Delta c}$		kA		6 (with a SCPD-fuse gG 63A)		10 (with a SCPD-fuse gG 100A)	
Rated residual breaking capacity $I_{\Delta m}=I_m$		kA		1		1	
Rated impulse withstand voltage (1.2/50) U_{imp}		kV		4		4	
Dielectric test voltage at ind. freq. for 1 min.		kV		2.5		2.5	
Surge current resistance (wave 8/20)		A		250		5000	
Mechanical features							
Toggle				BLACK sealable in ON-OFF position		BLUE sealable in ON-OFF position	
Contact position indicator (CPI)				not available		yes	
Electrical life				10.000		10.000	
Mechanical life				20.000		20.000	
Protection degree	housing			IP4X		IP4X	
	terminals			IP2X		IP2X	
Tropicalization acc. to IEC/EN 60068-2	humid heat	°C/RH		28 cycles with 55/95…100		28 cycles with 55/95…100	
	constant climatic conditions	°C/RH		23/83 - 40/93 - 55/20		23/83 - 40/93 - 55/20	
	variable climatic conditions	°C/RH		25/95 - 40/95		25/95 - 40/95	
Ambient temperature (with daily average ≤ +35 °C)		°C		-5..+40		-25..+55	
Storage temperature		°C		-40…+70		-40…+70	
Installation							
Terminal type				failsafe bi-directional cylinder-lift terminal at top and bottom (shock protected)		failsafe bi-directional cylinder-lift terminal at top and bottom (shock protected)	
Terminal size top/bottom for cable		mm^2		25/25		25/25	
Terminal size top/bottom for busbar		mm^2		10/10		10/10	
Tightening torque		N*m		2.8		2.8	
Tool				Nr. 2 Pozidriv		Nr. 2 Pozidriv	
Mounting				on DIN rail EN 60715 (35 mm) by means of fast clip device		on DIN rail EN 60715 (35 mm) by means of fast clip device	
Connection				from top and bottom		from top and bottom	
Dimensions and weight							
Dimensions (H x D x W)	2P	mm		85 x 69 x 35		85 x 69 x 35	
	4P	mm		85 x 69 x 70		85 x 69 x 70	
Weight	2P	g		200		200	
	4P	g		350		350	
Combination with auxiliary elements							
Combinable with:	F2C-ARH autoreclosing unit			yes (the 2 poles version 30mA)		no	

RCBO DS201 and DS202C
The details make the difference

A range designed to ensure efficiency and protection

Bi-directional cylindrical terminal ensure higher safety of connecting operations, making them easier.

Information on the device are laser printed to ensure readability over time.

Each RCBO of the DS201-DS202C range is equipped with an RFid tag containing a unique serial number assigned to ABB according to the standard ISO/IEC FCD 15693-3 in order to authenticate the product.

New: the label carrier.

Test pushbutton to verify the correct functioning of the device

Any earth fault can be immediately identified through the blue indicator, that signals the differential tripping and which cannot be activated in case of manual operation on the toggle. This prevents any misinterpretations of the device and system status.

Contact position indicator (CPI): to always know the status of the contacts (red: closed contacts; green: open contacts).

The terminals available on DS201-DS202C make easier the supply operation in parallel with busbars as they are composed by two different seats, a front seat for 25 mm² cables and a back seat for 10 mm² busbars.

All the devices of the DS201 and DS202C series have been tested in a wide range of temperatures: from -25 °C (as indicated by the snowflake marked on the front side) up to +55°C.

Label carrier for clear and reliable identification.
With the practical label carrier fitted in the new circuit breakers you can give maximum visibility to the information relating to the protected loads.

All the quality ensured by the main international marks is clearly visible on the device even if installed in the switchboard.

Product description and EAN code laser printed on the lateral side of the device for an easier stock management.

System pro M compact®
Front panel residual current relays

A range designed to ensure efficiency and protection


2CSC400001F0003


2CSC400002F0003


2CSC400003F0003


2CSC400004F0003

ELR front panel residual current relay

Front panel residual current relays are electronic devices used in combination with an external toroidal transformer. They are according to the protection standard IEC/EN 60947-2 Annex-M.
The sensitivity can be set from 0.03 A to 30 A, while the tripping time from 0 to 5 seconds.
Residual current relays are available in versions 48x48 mm, 72x72 mm, and 96x96 mm.
The Fail Safe function is available for versions ELR48P, ELR72P and ELR96P: the contacts switch when there is no auxiliary power.
The ELR96PF version is equipped with Fail Safe function, fault memory LED, and a frequency filter, that ensure continuity of service in the presence of harmonics.
ELR96PD has (in addition to these functions) a digital display for an instantaneous view of the residual current IΔn.

Operating	Order		Bbn	Price	Price	Weight	Pack
Voltage	details		8012542	1 piece	group	1 piece	unit
V	Type code	Order code	EAN			kg	pc.
110 V a.c./d.c. - 230 V a.c.	ELR48P	2CSG252211R1202	748229			0.112	1
24-48 V a.c./d.c.	ELR48V24P	2CSG452211R1202	734826			0.112	1
110 V a.c./d.c. - 230 V a.c.	ELR72	2CSG252120R1202	733928			0.322	1
24-48 V a.c./d.c.	ELR72V24	2CSG452120R1202	747024			0.322	1
110-230-400 V a.c.	ELR72P	2CSG152424R1202	734727			0.322	1
24-48 V a.c./d.c.	ELR72V24P	2CSG452424R1202	733829			0.322	1
110-230-400 V a.c.	ELR96	2CSG152130R1202	734628			0.383	1
24-48 V a.c./d.c.	ELR96V24	2CSG452130R1202	733720			0.383	1
110-230-400 V a.c.	ELR96P	2CSG152434R1202	734529			0.383	1
24-48 V a.c./d.c.	ELR96V24P	2CSG452434R1202	733621			0.383	1
110-230-400 V a.c.	ELR96PF	2CSG152435R1202	734420			0.383	1
110-230-400 V a.c.	ELR96PD	2CSG152436R1202	733522			0.383	1

Technical features								
		ELR48P	ELR72	ELR72P	ELR96	ELR96P	ELR96PF	ELR96PD
Operating voltage	[V]	24, 48,	24, 48,	24, 48, 110	24, 48, 110,	24, 48, 110,	110,	110,
		110, 230 a.c./	110, 230 a.c./	230, 400 a.c./	230, 400 a.c./	230, 400 a.c./	230, 400 a.c.	230, 400 a.c.
		24, 48, 115 d.c.	24, 48, 110 d.c.	24, 48 d.c.	24, 48 d.c.	24, 48 d.c.		
Frequency	[Hz]				**50 – 60**			
Frequency filter		-	-	-	-	-	Yes	Yes
Type					A			
Operating temperature	[°C]				-10…+60			
Power consumption	[W]				<7			
Sensitivity setting IΔn	[A]				from 0,03 to 30			
Tripping time setting Dt	[s]				from 0 to 5			
Contacts	[no.]	2	1	2	1	2	2	2
Contact capacity	[A]				5 (250 V a.c.)			
Dimensions	[mm]	48 x 48	72 x 72	72 x 72	96 x 96	96 x 96	96 x 96	96 x 96
Digital display		-	-	-	-	-	-	Yes
Protection degree (with cover)					IP52			
Protection degree (without cover)					IP40			
Protection degree (terminals)					IP20			
Standards					IEC EN 60947-2 Annex M			

System pro M compact®
RD3 residual current relays


2CSC400691F0201


2CSC400690F0201


2CSC400689F0201

RD3 residual current relays

The RD3 family of electronic residual current relays provides residual current protection and monitoring functions according to IEC/EN 60947-2:2006 annex M and can be used in conjunction with all S 200 automatic devices and Tmax range moulded case devices up to T5, for industrial installations.

The RD3 residual current relays can provide status indications through two output contacts.

Operating	Order		Bbn	Price	Price	Weight	Pack
Voltage	details		8012542	1 piece	group	1 piece	unit
V	Type code	Order code	EAN			kg	pc.
12-48 a.c./d.c.	RD3-48	2CSJ201001R0001	748236			0.13	1
230-400 a.c.	RD3	2CSJ201001R0002	734833			0.25	1
12-48 a.c./d.c.	RD3M-48	2CSJ202001R0001	733935			0.13	1
230-400 a.c.	RD3M	2CSJ202001R0002	747031			0.25	1
12-48 a.c./d.c.	RD3P-48	2CSJ203001R0001	734734			0.13	1
230-400 a.c.	RD3P	2CSJ203001R0002	733836			0.25	1

Technical features			
	RD3/RD3-48	RD3M/RD3M-48	RD3P/RD3P-48
Operating voltage	RD3: 230-400 Vac +10% / -15%	RD3M: 230-400 Vac +10% / -15%	RD3P: 230-400 Vac +10% / -15%
	RD3-48: 12-48 Vac/Vdc +10% / -15%	RD3M-48: 12-48 Vac/Vdc +10% / -15%	RD3P-48: 12-48 Vac/Vdc +10% / -15%
Auxiliary supply frequency		50-60 Hz	
Network monitored frequency		50-150 Hz a	
Frequency filter	-	Yes	Yes
Type		A (up to IDn=5 A)	
		AC (for higher current)	
Operating temperature		-25….+70 °C	
Power consumption		<3.6 W (RD3, RD3M, RD3P),	
		<600 mW RD3-48, RD3M-48, RD3P-48)	
Sensitivity settings IDn		0.03-0.1-0.3-0.5-1-2-3-5-10-30 A	
Tripping time settings Dt		0-0.06-0.2-0.3-0.5-1-2-3-5-10 s	
Pre-alarm threshold	-	60%	60%
Max. resistance connection between toroidal transformer and relay		3 W	
Max. length connection of remote reset button		15 m	
Output Contact capacity (7-8-9); (10-11-12)		8 A, 250 V a.c.	
Led bar indicator	-	-	Yes
Max. cable terminals section		2.5 mm²	
Modules		3	
Dimensions		52.8 × 85 × 64.7 mm	
Protection degree		IP20	
Standards		IEC/EN 60947-2 annex. M	

a RD3 can detect, as a monitor, sinusoidal earth fault currents in networks with frequencies between 50 Hz and 150 Hz.

System pro M compact®
Toroidal transformers


2CSC400494F0201

Toroidal transformers

Dimension Ø	Order details		Bbn 8012542	Price 1 piece	Price group	Weight 1 piece	Pack unit
mm	Type code	Order code	EAN			kg	pc.
29 (modular version	TRM	2CSM029000R1211	020707			0.170	1
35	TR1	2CSG035100R1211	020301			0.212	1
60	TR2	2CSG060100R1211	020400			0.274	1
80	TR3	2CSG080100R1211	020509			0.454	1
110	TR4	2CSG110100R1211	020608			0.530	1
110 (openable version)	TR4/A	2CSG110200R1211	743408			0.600	1
160	TR160	2CSG160100R1211	743507			1.350	1
160 (openable version)	TR160A	2CSG160200R1211	743606			1.600	1
210	TR5	2CSG210100R1211	024804			1.534	1
210 (openable version)	TR5/A	2CSG210200R1211	065708			1.856	1

System pro M compact®
Measurement devices – DMTME multimeters


2CSC400136F0201


2CSC400751F0001


2CSC400752F0001

DMTME multimeters

The instruments DMTME are digital multimeters that allow the measurement, in TRMS mode, of the principal electrical parameters in three-phase and single-phase 230/400 Vac networks, including the max/min/average detection of the main electrical parameters and the active and reactive energy count. The multiple measured variables are displayed locally on four red 7-segment LED displays providing easy readability and simultaneous display of the measures of the electrical parameters of the phases individually and of the whole network.
The instruments DMTME combine, in a single instrument, the functions of multiple devices: voltmeter, ammeter, power factor meter, wattmeter, varmeter, frequency meter, active and reactive energy meters; it allows remarkable financial savings thanks to the reduction of space taken up in the panel and also of time required for cabling, along with the advantage of providing clear readings on a single device.
The DMTME-I-485, DMTME-I-485-96 and DMTME-I-485-72 models are additionally equipped with two digital relays, fully programmable as either pulse outputs for remote metering of energy consumption, or as alarm outputs. The output relay can be set as NO or NC.
There is also an RS485 port for communicating the measured parameters and alarms over a Modbus network; used in addition to a converter of the CUS series, it allows direct connection to a central PC for remote supervision and control of the electrical network.
All versions come complete with Mini CD containing the instruction manual, technical documentation, Modbus communication protocol and the DMTME-SW tool, intended to be a first-hand PC-based application for the remote visualization of the measures.

DMTME modular multimeters

TRMS measure of VL-L, VL-N, A, W, Var, VA, kWh, kVar, PF in 230/400 V a.c. lines. Indirect connection through CT …/5 A. Auxiliary supply at 110 V a.c. and 230 V a.c.

Auxiliary supply V d.c.	RS485 Serial port	Program. digital output	Order details Type code	Order code	Bbn 8012542 EAN	Price 1 piece	Price group	Weight 1 piece kg	Pack unit pc.
110-230	-	-	DMTME	2CSM170040R1021	975700			0.450	1
110-230	n	2	DMTME-I-485	2CSM180050R1021	975809			0.450	1

DMTME-96 panel multimeters

Auxiliary supply 230 V a.c. and 110 V a.c.

RS485 Serial port	Program. digital output	Dimension	Order details Type code	Order code	Bbn 8012542 EAN	Price 1 piece	Price group	Weight 1 piece kg	Pack unit pc.
-	-	96x96	DMTME-96	2CSG133030R4022	046752			0.450	1
n	2	96x96	DMTME-I-485-96	2CSG163030R4022	046851			0.450	1

DMTME-72 panel multimeters

Auxiliary supply 230 V a.c. and 400 V a.c.

-	-	72x72	DMTME-72	2CSG132030R4022	046554			0.450	1
n	2	96x96	DMTME-I-485-72	2CSG162030R4022	046653			0.450	1

System pro M compact®
Measurement devices – DMTME multimeters

Technical characteristics

Auxiliary supply		[V rms]	230 +15% - 10% DMTME, DMTME-72 and DMTME-96	
		[V rms]	400 +15% - 10% DMTME-72	
		[V rms]	115 +15% - 10% DMTME , DMTME-96	
Frequency		[Hz]	45…65	
Power consumption		[VA]	<6	
Fuse protection			T0.1A	
Voltage measuring inputs				
	Range	[V rms]	10…500 V (L-N)	
	Max. non destructive	[V rms]	550	
	Impedance (L-N)	[MW]	>8	
Current measuring inputs (only external CTs .../5 A)				
	Range	[A rms]	0.05…5	
	Overload		1.1 permanent	
Measurement accuracy				
	Voltage		±0.5% F.S. ±1 digit in range	
	Current		±0.5% F.S. ±1 digit in range	
	Active power		±1% ±0.1% F.S. from cosj = 0.3 to cosj = -0.3	
	Frequency		±0.2% ±0.1Hz from 40.0 to 99.9 Hz	
			±0.2% ±1Hz from 100 to 500 Hz	
Energy metering				
	Maximum metered value for single phase		4,294.9 MWh (MVarh) with KA = KV = 1	
	Maximum metered value for three phase		4,294.9 MWh (MVarh) with KA = KV = 1	
	Accuracy		Class 1	
	Max. power consumption	[VA]	1.4 for each input (with Imax = 5A rms)	
Digital outputs				
	Pulse duration		50 ms OFF (min)/ 50 ms ON	
	Vmax on contact		48 V (d.c. or a.c. peak)	
	Wmax dissipation		450 mW	
	Max frequency		10 pulses/sec	
	Imax contact		100 mA (d.c. or a.c. peak value)	
	Insulation		750 Vmax	
Programmable parameters				
	kVT transformer ratio Vprim/Vsec		1…500	
	kCT transformer ratio Iprim/Isec		1…1,250	
	Free hour counter	[h]	0…10,000,000, resettable	
	Countdown	[h]	1…32,000	
Operating temperature		[°C]	0…+50	
Storage temperature		[°C]	-10…+60	
Relative humidity			90% max. (non condensing) at 40°C	
Overall dimensions		[mm]	105x90x58	DMTME
		[mm]	96x96x103	DMTME-96
		[mm]	72x72x90	DMTME-72

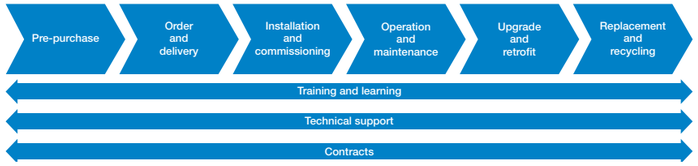
System pro M compact®
Measurement devices – selection table

A range designed to ensure efficiency and protection

		Modular and front panel multimeters		Front panel network analysers
	 DMTME	 DMTME-72	 DMTME-96	 ANR96
Overall dimensions	6 DIN modules	72x72x90	96x96x103	96x96x130
Display		LED		LCD graphic backlit
Power supply	110 V a.c. 230 V a.c.	230 V a.c. 400 V a.c.	110 V a.c. 230 V a.c.	20-60 V a.c./d.c.
TRMS voltage	**Electrical parameters measurement**			
TRMS current				
Frequency				
Power factor				
Cosj				
Active power				
Reactive power				
Active energy				
Reactive energy				
Apparent energy				
Peak value Min/Max/Avg				
Timer and count-down				
Power 4Q				**Power quality**
Energy 4Q				
Neutral current				
Current THD				
Voltage THD				
Password set up				
Tariff				**Energy management**
Maximum demand				
Harmonic analysis up to 31°				
Wave form visualization				
Memory 1 MB				
Outputs	**Digital**			
Inputs				**Digital**
Serial port	**RS485**			**RS485 RS232 RJ45**
Protocols	**Modbus RTU**			**Modbus RTU Ethernet TCP/IP Profibus DP**

Service Portfolio

Low Voltage Products Division delivers a vast range of services to cover the whole product lifecycle
The services offered by ABB's Low Voltage Products and Systems span the entire value chain, from the moment a customer makes the first enquiry to disposal and recycling of the product. Throughout the value chain, ABB provides training, technical support and customized contracts. All of this is supported by one of the most extensive country sales and service network.



Installation and commissioning

ABB provides comprehensive installation and commissioning services to achieve a problem-free start up, by following installation and commissioning procedures. The use of service personnel from ABB LP Service ensures that the switchgear is installed in a safe and correct way.

Operation and maintenance

ABB can guide the customer through a fast and efficient fault finding procedure as well as analyze the operation of the product and the customer's process. From site surveys to preventive, predictive maintenance and reconditioning, ABB has all the options covered to keep its customers' processes operational.

Upgrade and retrofits

Upgrades

An existing ABB product can often be upgraded to the latest software or hardware to improve the performance of the application. Existing processes can be economically modernized by upgrading with the latest technology.

Retrofits

Replacing old LV Switchgear of any make with ABB's latest versions can be done using the ABB special conversion kits which enable quick installation without structural modifications to the original compartment. In addition complete “turnkey” solutions are available. Specific conversion kits have been developed in order to replace old components with new ones that can be found in the latest switchgears.
Replacement and Recycling
ABB can advise on the best replacement products while ensuring that the existing products are disposed of in a way that meets all local regulations.

Entire value chain services

The main services available throughout the entire value chain include:

Training and learning – Hands on

ABB LP Service carries out training programs. Those trainings can be either general or bespoke and have the aim of providing the personnel in charge of management/ maintenance with the necessary know-how to achieve an excellent level of operating ability in certain situations. The manager of an electrical site can find it convenient to have certain maintenance capabilities available within his own team. The courses mainly cover:

- Operating equipment
- Maintenance principles
- Repairs for small faults

Technical support

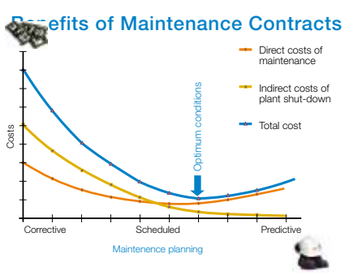
At each stage of the value chain, an ABB expert is available to offer advice to keep the customer's process or plant operational.

Spare parts

Availability of original spare parts is essential for fast and efficient maintenance activities. This becomes even more critical when the product was produced some years ago and has components in it which are no longer in production. ABB LP Service is the only one able to supply original and guaranteed spare parts. These can be easily selected and ordered through the authorized channel.

Maintenance contracts

In addition to the corrective maintenance of a faulty unit, which includes any type of emergency intervention, there is a complete preventive maintenance service package, ensuring those who manage the plant gain considerable advantages in terms of reliability, safety and reduction of costs. Also Customized contracts can be devised between the customer and ABB. Depending on the severity of the intervention needed, it can often be done on-site by our skilled and experienced engineers and is a faster way of resolution. ABB LP Service has an effective service network across the country and dedicated service workshops. For all your service requirements , contact our nearest Sales office.



Training Program 2013 – ABB Design Institute

Code	Training Module	Subject covered	Who can benefit
T1	Basics of Circuit protection and IEC/IS Regulations	1. Circuit protection understanding 2. IEC/IS regulations for circuit protection 3. Application examples	1. Design Engineers 2. Maintenance engineers 3. Site Engineers
T2	Solution for Final Distribution in an Electrical network/Residual current protection solution for polluted electrical network	1. Selection criteria 2. Application based control and protection 3. understanding different regulations	1. Site electrical engineers from contracting companies 2. Design engineers 3. Facility engineers
T3	Switching and Protection solutions for Renewable Energy application - Wind	1. Application understanding of electrical distribution in wind power 2. Protection philosophy - wind energy application 3. Selection criteria of switchgear in wind mill application	1. Design engineers from wind mill manufacturers 2. Maintenance engineers 3. Site engineers from EPC contractors
T4	Switching and Protection solutions for Renewable Energy application - Solar	1. Application understanding of electrical distribution in solar power 2. Protection philosophy - solar energy application 3. Selection criteria of switchgear for DC network and AC network	1. Design engineers from solar power plant manufacturers 2. Maintenance engineers 3. Site engineers from EPC contractors
T5	Understanding application of Lightening and Surge protection	1. Effects of surge and lightening protection in buildings and industry 2. Understanding remedial methods against surge and lighteningprotection 3. Selection criteria for Lightening and surge protection devices	1. Electrical network design engineers 2. Site electrical engineers 3. Engineering team from EPC contractors
T6	Electrical network consideration for Hospitals	1. Understanding of Hospital Electrical Distribution 2. Safety consideration in electrical distribution in Hospitals 3. protection device consideration in Hospitals	1. Electrical design engineers 2. Maintenance engineers from Hospitals 3. Engineers from EPC contractors
T7	Electrical network consideration for Data centers	1. Understanding of Electrical Distribution in data centers 2. Understanding TIER redundancy 3. Solution for Data centers	1. Electrical design engineers 2. Facility engineers from software industry/Data centers 3. Engineers from EPC contractors
T8	Energy Management solutions and understanding sub-metering application	1. Basic understanding of energy management system 2. Understanding concept of sub-metering solutions 3. Benefits of Energy management systems	1. Electrical design engineers 2. Facility managers/Maintenance managers 3. Engineers from EPC contractors
T9	Green Building and Energy efficiency with intelligent building solution(KNX)	1. Understanding requirement of Green buildings concepts 2. Energy efficiency solutions 3. Benefits of intelligent building solutions	1. Architectural engineers 2. Design engineers from Developers/ Consultants 3. Engineers from contractors
T10	IEC / IS regulation in Low voltage switchgear assembly	1. Latest developments in IEC regulation 2. Heating in LV installation 3. Forms of construction/Testing in accordance IEC 60439	1. Design engineers 2. Engineers from EPC contractors 3. Site engineers 4. Maintenance engineers
T11	Type tested enclosures system in LV application	1. Understanding TTA(type tested) and Partially TTA solutions 2. Understanding supplementary test requirement in Low voltage switchgear 3. ABB solutions for LV power distribution	1. Design engineers 2. Maintenance engineers/Facility engineers 3. Site engineers
T12	Application of Circuit Breakers	1. Understanding various application requirement in electrical distribution 2. Sizing and selection of circuit breakers 3. Understanding communication requirements in circuit breakers	1. Engineers from Panel building industry 2. Maintenance/Facility engineers 3. Design engineers
T13	Circuit Breakers - Standards and Regulations	1. Circuit breaker standards 2. General definitions in accordance to regulations 3. Understanding testing criteria for circuit breakers	1. Design engineers 2. Engineers from panel building industry 3. Engineers from commissioning/site engineers
T14	Course on Network Design Software of ABB	1. Method of short circuit calculations in LV network 2. Network calculation understanding in DOC software 3. Switchboard configuration through CAT software	1. Design engineers 2. Engineers from EPC contractors 3. Maintenance engineers
T15	Protection Coordination and Selectivity	1. Understanding selectivity 2. Understanding back up protection 3. Coordination of circuit breakers	1. Design engineers 2. Engineers from EPC contractors 3. Maintenance engineers
T16	Circuit Breaker Protection Releases	1. Understanding of protection functionalities 2. Basics of curves in LV circuit breakers 3. Implementation of protection in LV network	1. Maintenance engineers 2. Design engineers 3. Engineers from panel building industry
T17	Selection of Circuit Breakers - Application based	1. Understanding DC switching consideration 2. Suitability of circuit breakers for variable frequency application 3. Protection criteria in LV network	1. Design engineers 2. Maintenance engineers 3. Facility engineers
T18	Fuse technology in Power Distribution	1. International regulations on Power distribution public areas 2. Fuse technology - Advantages 3. Utilization categories in switches	1. Maintenance engineers from process industries 2. Design engineers 3. Engineers from Utility companies
T19	Motor control & protection	1. Motor control philosophy 2. Protection criteria in Motor applications 3. Innovative solutions in motor control and protection	1. Design engineers from OEM of Machine tools/Pump manufacturers 2. Maintenance engineers 3. Engineers from process industries

Training Program 2013 – ABB Design Institute

Code	Training Module	Subject covered	Who can benefit
T20	Application of control relays and safety in Machines	1. Application of safety and control relays in machines 2. Selection criteria for power supplies and sizing of power supplies 3. Safety solutions for industries	1. Design engineers OEM machine manufacturers 2. Maintenance engineers from Auto/ Paper/Cement/engineering industry
T21	Intelligent Motor Management solutions	1. Concept of Intelligent motor control 2. How to improve plant efficiency with intelligent motor managers 3. Motor diagnostics	1. Electrical design engineers from process/Consulting sectors 2. Engineers from Panel building industry 3. Maintenance engineers from process industries
T22	Efficient motor starting solutions and Software tool demonstration	1. Effects of different starting methods of motors on loads 2. Motor starting criteria for different applications 3. load specific development of load/torque curves through software tools	1. Design engineers from Pump/ Compressor/Crusher/machinery manufacturers 2. Engineers from Panel building industry 3. Maintenance engineers from process industries/engineering industries
T23	Criteria of selecting arc proof and safe LV switchboards	1. Electrical safety requirement in LV switchgear 2. Criteria of selection of LV switchboards 3. Safe and reliable LV switchboard design	1. Maintenance engineers from Industry/ Hospitality/Hospitals 2. Design engineers 3. Engineers from panel building industry
T24	Application specific selection of contactors	1. Utilization categories of auxiliary and power contactors 2. Selection criteria of contactors based on application 3. Innovations in contactor technology	1. Design engineers 2. Maintenance engineers from Industries 3. Engineers from Panel building industry
T25	Method of starting induction motors	1. Understanding starting of induction motors 2. Selection starting method of induction motors 3. Limitations and benefits various methods of starting	1. Design engineers 2. Engineers from panel building industry 3. Engineers from OEM's - Pump/ Blowers/Compressors 4. Maintenance engineers
T26	Selection for electronic products in industrial automation	1. Sensors selection criteria 2. Automation products in machines to improve efficiency	1. Design engineers OEM machine manufacturers 2. Maintenance engineers from Auto/ Paper/Cement/engineering industry

Type 2 coordination
MS 116 MS132 DOL-NS

SCPD type : MMS
Rated voltage : 400 V
Short circuit current : 50 kA
Starting type : DOL-NS
Coordination type : IEC Type 2
Overload relay : Embedded
Frequency : 50-60 Hz

Motor		Manual Motor Starter			Contactor
Rated Power	Rated Current		Instantaneous Tripping Current	Current setting range	
[kW]	[A]	Type	[A]	[A]	Type
0.06	0.2	MS132-0,25	2.44	0.16 - 0.25	A9
0.09	0.3	MS132-0,40	3.9	0.25 - 0.40	A9
0.12	0.44	MS132-0,63	6.14	0.40 - 0.63	A9
0.18	0.6	MS132-0,63	6.14	0.40 - 0.63	A9
0.25	0.85	MS132-1,0	11.5	0.63 - 1.00	A9
0.37	1.1	MS132-1,6	18.4	1.00 - 1.60	A9
0.55	1.5	MS132-1,6	18.4	1.00 - 1.60	A9
0.75	1.9	MS132-2,5	28.75	1.60 - 2.50	A9
1.1	2.7	MS132-4,0	50	2.50 - 4.00	A16
1.5	3.6	MS132-4,0	50	2.50 - 4.00	A16
2.2	4.9	MS132-6,3	78.75	4.00 - 6.30	A26
3	6.5	MS132-10	150	6.30 - 10.00	A26
4	8.5	MS132-10	150	6.30 - 10.00	A26
5.5	11.5	MS132-12	180	8.00 - 12.00	A26
7.5	15.5	MS132-16	240	10.00 - 16.00	A30
11	22	MS132-25	375	20.00 - 25.00	A30
15	29	MS132-32	480	25.00 - 32.00	A30
18.5	35	MS450-40	520	28.00 - 40.00	A40

MS116 SD - NS

Coordination type : IEC Type 2
SCPD type : MMS
Rated voltage : 400 V
Short circuit current : 50 kA
Starting type : SD-NS
Overload relay : Embedded
Frequency : 50-60 Hz

Rated Power	Rated Current		Instantaneous Tripping Current	Current setting range			
[kW]	[A]	Type	[A]	[A]	Line	Delta	Star
0.06	0.22	MS116-0,25	3	0.16 - 0.25	A9	A9	A9
0.09	0.34	MS116-0,40	4.8	0.25 - 0.40	A9	A9	A9
0.12	0.44	MS116-0,63	7.56	0.40 - 0.63	A9	A9	A9
0.18	0.72	MS116-1,00	12	0.63 - 1.00	A9	A9	A9
0.25	0.83	MS116-1,00	12	0.63 - 1.00	A9	A9	A9
0.37	1.12	MS116-1,60	19.2	1.00 - 1.60	A9	A9	A9
0.55	1.45	MS116-1,60	19.2	1.00 - 1.60	A9	A9	A9
0.75	1.9	MS116-2,50	30	1.60 - 2.50	A9	A9	A9
1.1	2.59	MS116-4,00	48	2.50 - 4.00	A16	A16	A9
1.5	3.45	MS116-4,00	48	2.50 - 4.00	A16	A16	A9
2	4	MS116-6,30	75.6	4.00 - 6.30	A16	A16	A9
2.2	4.8	MS116-6,30	75.6	4.00 - 6.30	A16	A16	A9

Type 2 coordination
MCCB DOL-NS EOL

SCPD type : MCCB
Rated voltage : 400 V
Short circuit current : 50 kA
Starting type : DOL-NS
Coordination type : IEC Type 2
Overload relay : EOL
Frequency : 50-60 Hz

Motor		Moulded Case Circuit Breakers		Contactor	Overload Relay	
Rated Power	Rated Current		Instantaneous Tripping Current			Current setting range
[kW]	[A]	Type	[A]	Type	Type	[A]
0.37	1.1	T2S160 MF 1.6	21	A9	E16DU2.7	0.90 - 2.70
0.55	1.5	T2S160 MF 1.6	21	A9	E16DU2.7	0.90 - 2.70
0.75	1.9	T2S160 MF 2	26	A9	E16DU2.7	0.90 - 2.70
1.1	2.7	T2S160 MF 3.2	42	A9	E16DU6.3	2.00 - 6.30
1.5	3.6	T2S160 MF 4	52	A16	E16DU6.3	2.00 - 6.30
2.2	4.9	T2S160 MF 5	65	A26	E16DU6.3	2.00 - 6.30
3	6.5	T2S160 MF 8.5	110	A26	E16DU18.9	5.70 - 18.90
4	8.5	T2S160 MF 11	145	A30	E16DU18.9	5.70 - 18.90
5.5	11.5	T2S160 MF 12.5	163	A30	E16DU18.9	5.70 - 18.90
7.5	15.5	T2S160 MA 20	210	A30	E16DU18.9	5.70 - 18.90
11	22	T2S160 MA 32	288	A30	E45DU45	15.00 - 45.00
15	28.5	T2S160 MA 52	392	A50	E45DU45	15.00 - 45.00
18.5	36	T2S160 MA 52	469	A50	E80DU80	27.00 - 80.00
22	42	T2S160 MA 52	547	A50	E80DU80	27.00 - 80.00
30	56	T2S160 MA 80	840	A63	E80DU80	27.00 - 80.00
37	68	T2S160 MA 80	960	A75	E80DU80	27.00 - 80.00
45	83	T2S160 MA 100	1,200.00	A95	E140DU140	50.00 - 140.00
55	98	T3S250 MA 160	1,440.00	A145	E200DU200	60.00 - 200.00
75	132	T3S250 MA 200	1,800.00	A145	E200DU200	60.00 - 200.00
90	160	T3S250 MA 200	2,400.00	A185	E200DU200	60.00 - 200.00
110	195	T4S320 PR221-I In320	2,720.00	A210	E320DU	100.00 - 320.00
132	230	T5S400 PR221-I In400	3,200.00	A260	E320DU	100.00 - 320.00
160	280	T5S400 PR221-I In400	4,000.00	A300	E320DU	100.00 - 320.00
200	350	T5S630 PR221-I In630	5,040.00	AF400	E500DU	150.00 - 500.00
250	430	T6S630 PR221-I In630	6,300.00	AF460	E500DU	150.00 - 500.00
290	520	T6S800 PR221-I In800	7,200.00	AF580	E800DU	250.00 - 800.00
315	540	T6S800 PR221-I In800	8,000.00	AF580	E800DU	250.00 - 800.00
355	610	T6S800 PR221-I In800	8,000.00	AF750	E800DU	250.00 - 800.00

Type 2 coordination
MCCB SD-NS

SCPD type : MCCB
Rated voltage : 400 V
Short circuit current : 50 kA
Starting type : SD-NS
Coordination type : IEC Type 2
Overload relay : TOL
Frequency : 50-60 Hz

Motor		Moulded Case Circuit Breakers		Contactor type			Overload Relay	
Rated Power	Rated Current		Instantaneous Tripping Current					Current setting range
[kW]	[A]	Type	[A]	Line	Delta	Star	Type	[A]
18.5	35	T2S160 MA52	469	A50	A50	A26	TA75DU25	18.00 - 25.00
22	41	T2S160 MA52	547	A50	A50	A26	TA75DU32	22.00 - 32.00
30	55	T2S160 MA80	720	A63	A63	A30	TA75DU42	29.00 - 42.00
37	66	T2S160 MA80	840	A75	A75	A30	TA75DU52	36.00 - 52.00
45	80	T2S160 MA100	1,050.00	A75	A75	A30	TA75DU63	45.00 - 63.00
55	97	T2S160 MA100	1,200.00	A75	A75	A40	TA75DU63	45.00 - 63.00
75	132	T3S250 MA160	1,700.00	A95	A95	A75	TA110DU90	66.00 - 90.00
90	160	T3S250 MA200	2,000.00	A110	A110	A95	TA110DU110	80.00 - 110.00
110	195	T3S250 MA200	2,400.00	A145	A145	A95	TA200DU135	100.00 - 135.00
132	230	T4S320 PR221-I In320	2,880.00	A145	A145	A110	E200DU200	60.00 - 200.00
132	230	T4S320 PR221-I In320	2,880.00	A145	A145	A110	TA200DU175	130.00 - 175.00
160	280	T5S400 PR221-I In400	3,600.00	A185	A185	A145	E200DU200	60.00 - 200.00
160	280	T5S400 PR221-I In400	3,600.00	A185	A185	A145	TA200DU175	130.00 - 175.00
200	350	T5S630 PR221-I In630	4,410.00	A210	A210	A185	E320DU320	100.00 - 320.00
200	350	T5S630 PR221-I In630	4,410.00	A210	A210	A185	TA450DU235	165.00 - 235.00
250	430	T5S630 PR221-I In630	5,670.00	A260	A260	A210	E320DU320	100.00 - 320.00
250	430	T5S630 PR221-I In630	5,670.00	A260	A260	A210	TA450DU310	220.00 - 310.00

General conditions of sale

General terms and conditions of sale:
- All prices mentioned in this price list are in Indian rupees(INR)
- Prices are based on Ex-warehouse basis
- Prices indicated are Maximum retail price (maximum recommended selling price) unless otherwise marked(Inclusive of duties and taxes)
- Items marked # are with list prices are inclusive of excise duty/counter veiling duty, However exclusive of all taxes and levies
- Prices are subject to revision without prior notice

Terms of delivery: Ex- warehouse, Nelamangala or any other ABB warehouse in India

Standard delivery terms
Ex stock or 30 working days

Address of Nelamangala Warehouse
ABB Limited
Low Voltage Product Warehouse
Survey No. 64 & 72/2, Opp. Himalaya Drugs
Golden Palms Spa & Hotel Road, Dasanapura Hobli
Heggadadevanapura Village, Bangalore - 562 123
Tel. : +91 80 2294 8206
Tel. : +91 80 2294 8608
Fax : +91 80 2371 7159

Nelamangala
Survey No: 88/3, 88/4, Basavanhalli,Kasaba Hobli,
Nelamangala Taluk,Bangalore - 562123, Karnataka, India
Tel. : +91 80 2294 6618
Tel. : +91 80 2294 6619
Fax : +91 80 2294 9999

Classic Products
Isomax “S” Range of MCCB’s
OETL upto 2500 Amps Load Break Switches
OESA 200 to 800 Switches

Warranty Policy:
ABB guarantee the supply according to the law. Upon expiration, the warranty expires even if the devices have not been operated for any reason. In the case of faults, as long as this does not depend on assembly errors by the Customer or third parties, on incorrect use of the materials, lack of or incorrect maintenance, normal wear and tear, faults caused by inexperience or negligence by the purchaser or by transport, by the improper storage of the materials, or failure by the Customer to adopt measures to reduce eventual dysfunction, overload with respect to the contractual limits, by unauthorized intervention, by tampering or action effected by the Customer,to force majeure,ABB will,throughout the warranty period,repair or replace any defective part of supply free of charge, in the shortest possible time, at its premises. Where the repair cannot be executed at ABB premises, except as otherwise agreed, all the supplementary or relevant expenses shall be borne by the customer.

Repair or replacement will be executed only if the customer has performed all its obligations to that date. The Customer may not suspend performance of the obligations in any case in which this warranty is invoked.The term for the repair or replacement of the faulty supply will be agreed by ABB and the customer.The shipment of any supply claimed to be faulty by the Customer to ABB and subsequently by ABB to the Customer, shall be at the risk and under the responsibility of the customer,who shall arrange adequate insurance coverage. The supply repaired or replaced is shipped at the expense and risk of the customer.Any dispute about a shipment has no effect on the remainder of the supply.The products replaced by ABB become the property of ABB.

Any claim regarding the supply, machinery, plant or components not compliant with the specifications or the contractual documentation must be raised in writing, within a maximum term of 8 days from delivery, when the time limit for action expires. In the case of systems, this term is 60 days from execution of the disputed service when the time limit for action expires.

In the case of latent defects, the terms indicated above run from the date of discovery. Once the warranty period has expired claims are not accepted,even for latent defect. Where the claim is timely and justified, ABB's obligation is limited to replacement of the goods found not in compliance or repetition of execution of the non-compliant service, excluding all rights to the Customer to seek termination of the contract and/or compensation of damages.

With reference to the provision of spare parts, ABB reserves the right to provide materials either from the original supplier or from equivalent supplier.

Warranty Period:
1. **Breakers & Switches:** The Warranty period is 12 months from the date of commissioning or 18 months from the date of ABB's invoice, whichever is earlier.
2. **Control Products:** The Warranty period is 12 months from the date of commissioning or 18 months from the date of ABB's invoice, whichever is earlier.
3. **Enclosures & Din Rail Components:** The warranty period is 5 years from the date of ABB's invoice if the components are used in ABB's enclosure. If non- ABB enclosure is used, Warranty period is 12 months from the date of commissioning or 18 months from the date of ABB's invoice, whichever is earlier.

Liability Clause:
The manufacturer shall not be liable for any consequential loss, injury or damages attributable to defect or failure of its products.

Notes

Notes

Notes

Notes

Contact us

North

No. 14, Mathura Road
P.O. Amar Nagar
Faridabad 121 003
Tel: +91 129 227 5592
Tel: +91 129 227 9627
Tel: +91 129 504 9000
Fax: +91 129 227 9692
Fax: +91 129 227 5019

Chandigarh:
Tel: +91 172 4321 800
Fax: +91 172 2601 618

Dehradun
Tel: +91 135 2762 731
Fax: +91 135 2760 655

Jaipur:
Tel: +91 141 274 4024
Fax: +91 141 274 4027

Lucknow:
Tel: +91 522 220 9436
Fax: +91 522 220 9478

Ludhiana
Tel: +91 161 465 6830/31
Fax: +91 161 465 6830

East

ABB ltd, Omega Building,
17th Floor, Bengal Intelligent Park, Block
EP & GR Salt Lake City, Kolkota - 700091.
Tel: + 91 33 6621 3000 -11
Fax: +91 33 6621 3187

Bhubaneshwar:
Tel : +91 674 6616 302/311
Fax: + 91 674 6616 307

Jamshedpur:
Tel : +91 657 6619 200
Fax: +91 657 6619 200

Raipur
Tel: +91 771 4213 204
Fax: +91 771 4213 222

West

ABB House
Dr. S B Path Ballard Estate
Mumbai 400 038
Tel : +91 22 6615 9913
Fax: +91 22 6631 4203

Pune:
Tel: + 91 20 6624 3838
Fax: + 91 20 6624 3817

Ahmedabad:
Tel: + 91 79 6609 0112
Fax: +91 79 6609 0105

Bhopal:
Tel : +91 755 4087 601-10
Fax: + 91 755 4087 611

Nagpur:
Tel : +91 712 646 1145/46/45/49
Fax: + 91 712 229 0283

Vododara:
Tel : +91 265 264 2141
Fax: + 91 265 264 0716

South

Khanija Bhavan, 5th Floor, West Wing,
No: 49, Race Course Rd, Bangalore -
560001.
Tel: + 91 80 2294 9250
Fax:+91 80 2294 6702/03

Hyderabad:
Tel : + 91 40 2790 6736/29
Fax: + 91 40 2790 6648

Kochi:
Te l: +91 484 233 0342
Fax: +91 484 233 0343

Vishakapatnam:
Tel: +91 891 2538 188
Fax: +91 891 2795 837

Chennai:
1st Floor, "Prestige Palladium Bayan"
(Opp BSNL Teleshoppe)
No.129 – 140, Greams Road
Chennai – 600 006
Tel: +91 44 2829 1550/1551
Fax: +91 44 2829 1554

Coimbatore:
Tel: +91 422 2300 3415
Fax: +91 422 230 3415

Works:

Nelamangala
Survey No: 88/3, 88/4,
Basavanhalli, Kasaba Hobli,
Nelamangala Taluk,
Bangalore - 562123, Karnataka, India
Tel: +91 80 2294 8995
Fax: +91 80 2294 9999

Peenya
Plot no.5 & 6, II Phase,
Peenya Industrial Area 560058,
Bangalore, Karnataka, INDIA
Phone: +91 80 22949354/9585
Telefax: +91 80 22949389

ABB India Helpline:

Technical Telephone support for customers and channel partners.
☎ **Toll Free : (BSNL) +91 1800 420 07 07**

email : lp.contactcenter@in.abb.com

www.abb.com/lowvoltage

Products available at:

Power and productivity
for a better world™