

TemBreak^{PRO}

Coordination

Moulded Case Circuit Breakers & Socomec Tables

TECH DATA



Version

1.1.0



Summary of Changes

This section highlights the details of changes made since the previous issue of this document.

The versioning convention used to track changes in this document follows the structure **Vx.y.z** where:

- x:** Major revision, where extensive changes are made which is generally incompatible with the previous version. Such changes may include new products and/or features, or removal of information which is no longer relevant or applicable to the previous version
- y:** Minor revision, where changes made do not change the overall scope of the previous version, but may include additional information which complements or corrects the previous version, or provides additional clarity on an existing topic.
- z:** Patch version, where small changes are made to correct minor errors or adjust existing text, charts, figures and/or images, and which do not add or remove information from the previous version. Example changes may include spelling corrections, image re-sizing and adjustments, updated images, etc.

Version	Publication date	Changes	By
V 1.0.0	21-Apr-2021	Initial release	N.ALEX
V 1.1.0	17-Mar-2023	Corrected kA formatting, fixed errors in Available MCCB Table, Added B Model Backup	N.ALEX

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Introduction

The technical data in this document relates to Back-up Coordination of TemBreak PRO and Socomec load break and transfer switches. This document provides data for the following MCCB models:

- P160, P250, P400, P630

Additional Resources

The following resources also contain this information.

Resource	Description
NHP/Terasaki TemBreak <i>PRO</i> MCCB Brochure TemBreakPRO-BRO-001-EN	Brochure providing a range overview, high level data, and product features & benefits
NHP/Terasaki TemBreak <i>PRO</i> Technical Catalogue NHP-TECH-PDP-CP-2020-11-27-EN	Catalogue for product selection and technical data

Terminology and Abbreviations

Abbreviation	Description	Abbreviation	Description
Calibrated Temperature	Temperature Rating for Thermal Magnetic MCCBs	MCCB	Moulded Case Circuit Breaker
Rated Temperature	Temperature Rating for Electronic and Non-Auto MCCBs		
TM	Adjustable Thermal and Adjustable Magnetic	FF	Fixed Thermal and Fixed Magnetic
FM	Fixed Thermal and Adjustable Magnetic	TF	Adjustable Thermal and Fixed Magnetic
BE	Basic Electronic Trip Unit (dial type, LSI and LSIG)	SE	Smart Energy Trip Unit
LSI	Long Time, Short Time and Instantaneous Protection	LSIG	Long Time, Short Time, Instantaneous and Ground Fault Protection
I_n	Rated Current	AF	Ampere Frame

Product Information

Part Number Break Down



a) Model Type

A	Basic applications (160...250 A)
P	Mid to advanced applications (160...630 A)
B	High current, high kA applications (160...1600 A)
ZS	Earth Leakage applications (125...800 A)
XS	Highest current applications (2000...3200 A)

b) Ampere Frame

125 A
160 A
250 A
400 A
630 A
800 A
1000 A
1250 A
1600 A
2000 A
2500 A
3200 A

c) Short Circuit Break Capacity I_{cu} (kA)

R	200 kA
L	150 kA
P	125 kA
S	110 kA
G	100 kA
HL	85 kA
H	70 kA
M	65 kA
N	50 kA
F	36 kA
E	25 kA
D	Switch

d) Pole Pitch Size (mm) ²⁾

1	25
2	30
3	35

e) No. of Poles

1	⁷⁾
2	⁸⁾
3	
4	

f) Trip Unit Rating (I_n)

I_n x A

g) Trip Unit Type

TF	Adj Thermal Fix Magnetic ⁴⁾
FF	Fix Thermal Fix Magnetic ⁴⁾
FM	Fix Thermal Adj Magnetic ⁹⁾
TM	Adj Thermal Adj Magnetic
SX	Smart Ammeter ^{5) 6)}
BE	Basic Electronic ⁶⁾
SE	Smart Energy ⁶⁾
NN	Non-Auto Switch

h) Trip Unit Option

G	Ground Fault ³⁾
N	Neutral ³⁾
P	Pre-Trip Alarm ³⁾
SN	Solid Neutral ⁹⁾



Notice: Not all combinations are possible. Confirm part number combination with NHP for availability.

1. 160AF only
2. For P_SE versions these features are standard and therefore are not added to the end of the part number.
3. Only available in A & ZS models
4. Only available in B models
5. Not available in A models
6. Only available in A and B models (FF Only Trip Unit)
7. Not available in A and B models (FF Only Trip Unit)
8. ZS Models

Product Information

Available MCCBs in the TemBreak *PRO* range:

Rating Short Circuit Break Capacity (kA)		Frame Size										
		160	250	400	630	800	1000	1250	1600	2000	2500	3200
E	25	A160E – TF A160E – FF B160E – FF	A250E – TM	P400E-TM	P630E – TM							
F	36	A160F – TF P160F – FF P160F – TM P160F – BE P160F – BEG P160F – SE	A250F – TM P250F – TM P250F – BE P250F – BEG P250F – SE	P400F – TM P400F – BE P400F – BEG P400F – SE	P630F – TM P630F – BE P630F – BEG P630F – SE	B800F – TM						
N	50	P160N – TM P160N – BE P160N – BEG P160N – SE	P250N – TM P250N – BE P250N – BEG P250N – SE	P400N – TM P400N – BE P400N – BEG P400N – SE	P630N – TM P630N – BE P630N – BEG P630N – SE	B800N – TM B800N – BE B800N – SX B800N – SE	B1000N – BE B1000N – BEG B1000N – SX B1000N – SE	B1250N – BE B1250N – BEG	B1600N – BE B1600N – BEG			
H	70	P160H – TM P160H – BE P160H – BEG P160H – SE	P250H – TM P250H – BE P250H – BEG P250H – SE	P400H – TM P400H – BE P400H – BEG P400H – SE	P630H – TM P630H – BE P630H – BEG P630H – SE	B800H – TM B800H – BE B800H – BEG B800H – SX B800H – SE	B1000H – BE B1000H – BEG B1000H – SX B1000H – SE	B1250H – BE B1250H – BEG				
HL	85							B1250HL – BE B1250HL – BEG	B1600HL – BE B1600HL – BEG	XS2000HL – BE XS2000HL – BEG	XS2500HL – BE XS2500HL – BEG	XS3200HL – BE
G	100					B800G – TM B800G – BE B800G – BEG B800G – SX B800G – SE						
S	110			P400S – TM P400S – BE P400S – BEG P400S – SE	P630S – TM P630S – BE P630S – BEG P630S – SE							
P	125	B160P – TM	B250P – TM B250P – BE B250P – SE	B400P – BE B400P – BEG		B800P – BE B800P – BEG B800P – SX B800P – SE						
R	200	B160R – TM	B250R – TM	B400P – BE B400P – BEG		B800R – BE B800R – BEG B800R – SX B800R – SE						
D	Switch	A160D – NN P160D – NN	A250D – NN P250D – NN	P400D – NN	P630D – NN	B800D – NN	B1000D – NN	B1250D – NN	B1600D – NN	XS2000D – NN	XS2500D – NN	

Load Break Switches

SLB

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream load break switches. Select an upstream MCCB based on the short circuit level of back-up required. Load break switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An SLB250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

P Models

Socomec	Rated Current	P160F	P160N	P160H	P250F	P250N	P250H	P400F	P400N	P400H	P400S	P630F	P630N	P630H	P630S
		36kA	50kA	70kA	36kA	50kA	70kA	36kA	50kA	70kA	110kA	36kA	50kA	70kA	110kA
SLB (SIRCO)	125A	36	50	70	36	50	60	18	18	18	18	16	16	16	16
	160A	36	50	70	36	50	60	18	18	18	18	16	16	16	16
	200A	36	50	70	36	50	70	36	50	70	110	30	30	30	30
	250A	36	50	70	36	50	70	36	50	70	110	30	30	30	30
	315A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	400A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	500A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	630A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	800A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1000A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	CD1250A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1250A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1600A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1800A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	2000A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	2500A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	3200A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	4000A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
5000A	36	50	70	36	50	70	36	50	70	110	36	50	70	110	

Load Break Switches

SLB

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream load break switches. Select an upstream MCCB based on the short circuit level of back-up required. Load break switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An SLB250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

B160, B250 & B400 Models

Socomec	Rated Current	B160P	B160R	B250P	B250R	B400P	B400R
		125kA	200kA	125kA	200kA	125kA	200kA
SLB (SIRCO)	125A	20	20	20	20	14	14
	160A	20	20	20	20	14	14
	200A	20	20	20	20	14	14
	250A	50	50	50	50	22	22
	315A	125	200	125	200	50	50
	400A	125	200	125	200	50	50
	500A	125	200	125	200	90	90
	630A	125	200	125	200	125	200
	800A	125	200	125	200	125	200
	1000A	125	200	125	200	125	200
	1250A	125	200	125	200	125	200
	1600A	125	200	125	200	125	200
	2000A	125	200	125	200	125	200
	2500A	125	200	125	200	125	200
	3200A	125	200	125	200	125	200

Load Break Switches

SLB

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream load break switches. Select an upstream MCCB based on the short circuit level of back-up required. Load break switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An SLB250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

B800 Models

Socomec	Rated Current	B800 Thermal Magnetic				B800 Electronic				
		36kA	50kA	70kA	100kA	50kA	70kA	100kA	125kA	200kA
SLB (SIRCO)	125A	-	-	-	-	-	-	-	-	-
	160A	-	-	-	-	-	-	-	-	-
	200A	-	-	-	-	-	-	-	-	-
	250A	15	15	15	15	16	16	15	-	-
	315A	24	24	24	24	25	25	24	-	-
	400A	24	24	24	24	25	25	24	-	-
	500A	32	23	23	23	32	32	32	-	-
	630A	36	50	65	60	50	62	60	70	70
	800A	36	50	50	45	50	50	45	52	52
	1000A	36	50	50	45	50	50	45	52	52
	1250A	36	50	70	90	50	70	90	125	120
	1600A	36	50	70	100	50	70	100	125	200
	2000A	36	50	70	100	50	70	100	125	200
	2500A	36	50	70	100	50	70	100	125	200
3200A	36	50	70	100	50	70	100	125	200	

Load Break Switches

SLB

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream load break switches. Select an upstream MCCB based on the short circuit level of back-up required. Load break switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An SLB250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

B1000, B1250 & B1600 Models

Socomec	Rated Current	B1000		B1250			B1600		
		50kA	70kA	50kA	70kA	85kA	50kA	70kA	85kA
SLB (SIRCO)	125A	-	-	-	-	-	-	-	-
	160A	-	-	-	-	-	-	-	-
	200A	-	-	-	-	-	-	-	-
	250A	15	15	-	-	-	-	-	-
	315A	24	24	-	-	-	-	-	-
	400A	24	24	-	-	-	-	-	-
	500A	33	33	23	23	23	23	23	23
	630A	50	62	38	38	38	38	38	38
	800A	50	50	32	32	32	32	32	32
	1000A	50	50	32	32	32	32	32	32
	1250A	50	70	50	50	50	50	50	50
	1600A	50	70	50	70	80	50	70	80
	2000A	50	70	50	70	85	50	70	85
	2500A	50	70	50	70	85	50	70	85
	3200A	50	70	50	70	85	50	70	85

Transfer Switches

ATyS_M and ATyS

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream ATyS transfer switches. Select an upstream MCCB based on the short circuit level of back-up required. ATyS transfer switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An ATyS 250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

P Models

Socomec	Rated Current	P160F	P160N	P160H	P250F	P250N	P250H	P400F	P400N	P400H	P400S	P630F	P630N	P630H	P630S
		36kA	50kA	70kA	36kA	50kA	70kA	36kA	50kA	70kA	110kA	36kA	50kA	70kA	110kA
ATyS_M	40 A	36	50	70	36	50	70	15	15	15	15	12	12	12	12
	63 A	36	50	70	36	50	70	15	15	15	15	12	12	12	12
	80 A	36	50	70	36	50	70	15	15	15	15	12	12	12	12
	100 A	36	50	70	36	50	70	15	15	15	15	12	12	12	12
	125 A	36	50	70	36	50	70	15	15	15	15	12	12	12	12
	160 A	36	50	70	36	50	70	15	15	15	15	12	12	12	12
ATyS	125 A	36	50	70	36	50	70	18	18	18	18	16	16	16	16
	160 A	36	50	70	36	50	70	18	18	18	18	16	16	16	16
	200 A	36	50	70	36	50	70	18	18	18	18	16	16	16	16
	250 A	36	50	70	36	50	70	36	50	70	110	30	30	30	30
	315 A	36	50	70	36	50	70	36	50	70	110	30	30	30	30
	400 A	36	50	70	36	50	70	36	50	70	110	30	30	30	30
	500 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	630 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	800 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1000 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1250 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1600 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	2000 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	2500 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
3200 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110	

Transfer Switches

ATyS_M and ATyS

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream ATyS transfer switches. Select an upstream MCCB based on the short circuit level of back-up required. ATyS transfer switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An ATyS 250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

B160, B250 & B400 Models

Socomec	Rated Current	B160P	B160R	B250P	B250R	B400P	B400R
		125kA	200kA	125kA	200kA	125kA	200kA
ATyS_M	40 A	9.5	9.5	10	10	8	8
	63 A	9.5	9.5	10	10	8	8
	80 A	9.5	9.5	10	10	8	8
	100 A	9.5	9.5	10	10	8	8
	125 A	9.5	9.5	10	10	8	8
	160 A	12.5	12.5	12	12	9	9
ATyS	125 A	19	19	20	20	14	14
	160 A	19	19	20	20	14	14
	200 A	19	19	20	20	14	14
	250 A	50	50	50	50	22	22
	315 A	125	200	125	200	50	50
	400 A	125	200	125	200	50	50
	500 A	125	200	125	200	90	90
	630 A	125	200	125	200	125	200
	800 A	125	200	125	200	125	200
	1000 A	125	200	125	200	125	200
	1250 A	125	200	125	200	125	200
	1600 A	125	200	125	200	125	200
	2000 A	125	200	125	200	125	200
	2500 A	125	200	125	200	125	200
3200 A	125	200	125	200	125	200	

Transfer Switches

ATyS_M and ATyS

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream ATyS transfer switches. Select an upstream MCCB based on the short circuit level of back-up required. ATyS transfer switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An ATyS 250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

B800 Models

Socomec	Rated Current	B800 Thermal Magnetic				B800 Electronic				
		36kA	50kA	70kA	100kA	50kA	70kA	100kA	125kA	200kA
ATyS_M	40 A	-	-	-	-	-	-	-	-	-
	63 A	-	-	-	-	-	-	-	-	-
	80 A	-	-	-	-	-	-	-	-	-
	100 A	-	-	-	-	-	-	-	-	-
	125 A	-	-	-	-	-	-	-	-	-
	160 A	-	-	-	-	-	-	-	-	-
ATyS	125 A	-	-	-	-	-	-	-	-	-
	160 A	-	-	-	-	-	-	-	-	-
	200 A	-	-	-	-	-	-	-	-	-
	250 A	15	15	15	16	15	15	15	-	-
	315 A	24	24	24	25	25	25	25	-	-
	400 A	24	24	24	25	25	25	25	-	-
	500 A	34	34	34	31	33	33	33	-	-
	630 A	36	50	61	59	50	65	60	70	70
	800 A	36	50	50	46	50	50	46	55	55
	1000 A	36	50	50	46	50	50	46	55	55
	1250 A	36	50	70	90	50	70	90	125	120
	1600 A	36	50	70	100	50	70	100	125	200
	2000 A	36	50	70	100	50	70	100	125	200
	2500 A	36	50	70	100	50	70	100	125	200
3200 A	36	50	70	100	50	70	100	125	200	

Transfer Switches

ATyS_M and ATyS

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream ATyS transfer switches. Select an upstream MCCB based on the short circuit level of back-up required. ATyS transfer switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An ATyS 250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

B1000, B1250 & B1600 Models

Socomec	Rated Current	B1000		B1250			B1600		
		50kA	70kA	50kA	70kA	85kA	50kA	70kA	85kA
ATyS_M	40 A	-	-	-	-	-	-	-	-
	63 A	-	-	-	-	-	-	-	-
	80 A	-	-	-	-	-	-	-	-
	100 A	-	-	-	-	-	-	-	-
	125 A	-	-	-	-	-	-	-	-
	160 A	-	-	-	-	-	-	-	-
ATyS	125 A	-	-	-	-	-	-	-	-
	160 A	-	-	-	-	-	-	-	-
	200 A	-	-	-	-	-	-	-	-
	250 A	16	16	-	-	-	-	-	-
	315 A	26	26	-	-	-	-	-	-
	400 A	34	34	-	-	-	-	-	-
	500 A	50	65	25	25	25	22	22	22
	630 A	50	50	37	37	37	38	38	38
	800 A	50	50	30	30	30	31	31	31
	1000 A	50	70	30	30	30	31	31	31
	1250 A	50	70	50	50	50	50	50	50
	1600 A	50	70	50	70	80	50	70	80
	2000 A	50	70	50	70	85	50	70	85
	2500 A	50	70	50	70	85	50	70	85
3200 A	50	70	50	70	85	50	70	85	

Transfer Switches

SCO

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream change-over switches. Select an upstream MCCB based on the short circuit level of back-up required. Change-over switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An SCO 250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

P Model

Socomec	Rated Current	P160F	P160N	P160H	P250F	P250N	P250H	P400F	P400N	P400H	P400S	P630F	P630N	P630H	P630S
		36kA	50kA	70kA	36kA	50kA	70kA	36kA	50kA	70kA	110kA	36kA	50kA	70kA	110kA
SCO	125 A	36	50	70	36	50	70	18	18	18	18	16	16	16	16
	160 A	36	50	70	36	50	70	18	18	18	18	16	16	16	16
	200 A	36	50	70	36	50	70	18	18	18	18	16	16	16	16
	250 A	36	50	70	36	50	70	36	50	70	110	30	30	30	30
	315 A	36	50	70	36	50	70	36	50	70	110	30	30	30	30
	400 A	36	50	70	36	50	70	36	50	70	110	30	30	30	30
	500 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	630 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	800 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1000 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1250 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	1600 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	2000 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	2500 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110
	3200 A	36	50	70	36	50	70	36	50	70	110	36	50	70	110

Transfer Switches

SCO

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream change-over switches. Select an upstream MCCB based on the short circuit level of back-up required. Change-over switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An SCO 250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

B160, B250 & B400 Models

Socomec	Rated Current	B160P	B160R	B250P	B250R	B400P	B400R
		125kA	200kA	125kA	200kA	125kA	200kA
SCO	125 A	19	19	20	20	14	14
	160 A	19	19	20	20	14	14
	200 A	19	19	20	20	14	14
	250 A	50	50	50	50	22	22
	315 A	125	200	125	200	50	50
	400 A	125	200	125	200	50	50
	500 A	125	200	125	200	90	90
	630 A	125	200	125	200	125	200
	800 A	125	200	125	200	125	200
	1000 A	125	200	125	200	125	200
	1250 A	125	200	125	200	125	200
	1600 A	125	200	125	200	125	200
	2000 A	125	200	125	200	125	200
	2500 A	125	200	125	200	125	200
3200 A	125	200	125	200	125	200	

Transfer Switches

SCO

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream change-over switches. Select an upstream MCCB based on the short circuit level of back-up required. Change-over switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An SCO 250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

B800 Models

Socomec	Rated Current	B800 Thermal Magnetic				B800 Electronic				
		36kA	50kA	70kA	100kA	50kA	70kA	100kA	125kA	200kA
SCO	125 A	-	-	-	-	-	-	-	-	-
	160 A	-	-	-	-	-	-	-	-	-
	200 A	-	-	-	-	-	-	-	-	-
	250 A	15	15	15	16	15	15	15	-	-
	315 A	24	24	24	25	25	25	25	-	-
	400 A	24	24	24	25	25	25	25	-	-
	500 A	34	34	34	31	33	33	33	-	-
	630 A	36	50	61	59	50	65	60	70	70
	800 A	36	50	50	46	50	50	46	55	55
	1000 A	36	50	50	46	50	50	46	55	55
	1250 A	36	50	70	90	50	70	90	125	120
	1600 A	36	50	70	100	50	70	100	125	200
	2000 A	36	50	70	100	50	70	100	125	200
	2500 A	36	50	70	100	50	70	100	125	200
3200 A	36	50	70	100	50	70	100	125	200	

Transfer Switches

SCO

TemBreak PRO MCCBs can be used to provide upstream overload and short circuit back-up protection for downstream change-over switches. Select an upstream MCCB based on the short circuit level of back-up required. Change-over switches can be used in various prospective fault current level applications as the upstream MCCB reduces the peak let through current.

Example: An SCO 250A can be used in a 50 kA application if there is an upstream P250N 50 kA MCCB.

MCCBs are to have a trip unit equivalent or smaller in size to the load break switch ampere rating.

B1000, B1250 & B1600 Models

Socomec	Rated Current	B1000		B1250			B1600		
		50kA	70kA	50kA	70kA	85kA	50kA	70kA	85kA
SCO	125 A	-	-	-	-	-	-	-	-
	160 A	-	-	-	-	-	-	-	-
	200 A	-	-	-	-	-	-	-	-
	250 A	16	16	-	-	-	-	-	-
	315 A	26	26	-	-	-	-	-	-
	400 A	34	34	-	-	-	-	-	-
	500 A	50	65	25	25	25	22	22	22
	630 A	50	50	37	37	37	38	38	38
	800 A	50	50	30	30	30	31	31	31
	1000 A	50	70	30	30	30	31	31	31
	1250 A	50	70	50	50	50	50	50	50
	1600 A	50	70	50	70	80	50	70	80
	2000 A	50	70	50	70	85	50	70	85
	2500 A	50	70	50	70	85	50	70	85
	3200 A	50	70	50	70	85	50	70	85

Example Cases

Example calculation for Transfer Switches, Load Break Switches and Change Over Switches

When selecting a circuit breaker for co-ordination with a product that has a rated short circuit withstand rating (I_{cw}), it is important to verify that the prospective short-circuit current can be limited to less than the fault level the product can withstand. The reference tables in this brochure provides suggestions for circuit breakers for back-up protection, however the customer can also verify the circuit breaker selection using the following calculations.

Example site installation:

- 3 phase 415V transformer
- Circuit breaker upstream protection
- 3 phase 250A ATyS
- 50kA prospective fault current level at ATyS

ATyS - Characteristics (according to IEC 60947, AS/NZS 60947)

Thermal current I (40°C)	125 A	160 A	250 A	400 A	630 A	800 A	1000 A
Rated insulation voltage U_i (V)	800	800	800	800	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)	8	8	8	8	12	12	12
Overload capacity							
Rated short-time withstand current 1s I_{cw} (kA rms)	7	7	9	9	13	26	35
Rated peak withstand current (kA peak) 1)	20	20	30	30	45	55	80
Prospective short-circuit current (kA rms) 1)	100	100	50	18	70	50	100
Associated fuse rated (A) 1)	125	160	250	400	630	800	1000

Using the given short circuit current (I_{sc}), the value is plotted on the maximum let through peak current curve (I_{peak}) shown in Figure 1.

At the short circuit current of 50kA, the maximum let through peak current of a standard 250A TemBreak PRO P250, with a 250A TM trip unit is less than 20kA.

Comparing this to the rated peak withstand current of 30kA for the ATyS, this is sufficient protection at a prospective fault current of 50kA. It is essential that the maximum let through peak current is less than the rated peak withstand current of the ATyS.

It is also very important to consider the maximum let through energy of the circuit breaker by looking at curves provided by the manufacturer.

At a 50kA fault, the P250 gives a maximum let through energy I^2t of $2.5 \times 10^6 \text{ A}^2\text{S}$. This is compared to the ATyS's maximum let through energy calculation below.

$$I_{cw} @ 1s = 9kA$$

$$(I_{cw} @ 1s)^2 \times 1s = (9 \times 10^3)^2 = 81 \times 10^6 \text{ A}^2\text{S}$$

This demonstrates that the ATyS can withstand a higher let through energy than the P250 will release during a 50kA fault current.

Let-through peak current characteristics

$U = 220/380VAC \sim 240/415VAC$
 $I_{cc}\text{-Ph/N}$ according to IEC 60947-2
 TERASAKI MCCB P250 TM Adj 3P,3P+N,4P

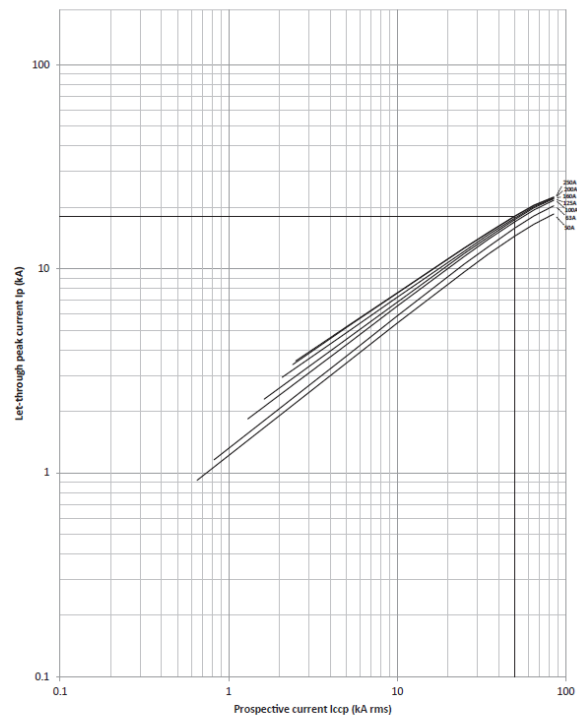


Figure 1



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