

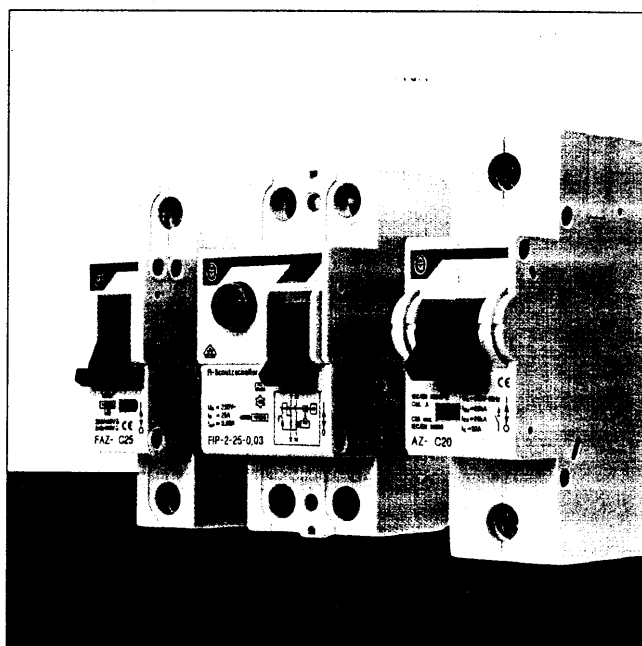
Catalogue Supplement

Miniature Circuit-Breakers

Residual-Current-/Earth Leakage Circuit-Breakers

Modular Installation Devices

Valid from August 1999



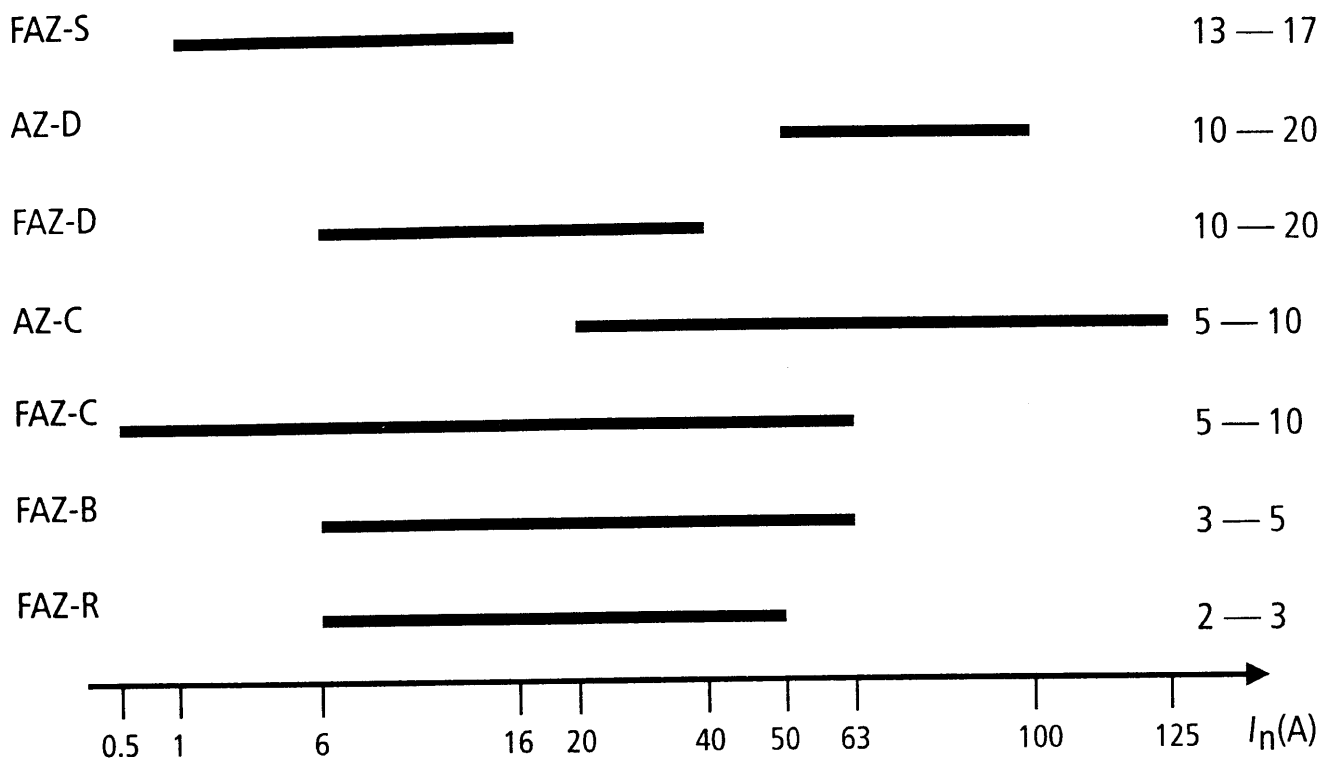
MOELLER



Think future. Switch to green.®

FAZ/AZ Miniature Circuit-Breakers

Response current of short-circuit release
 $n \times I_n$

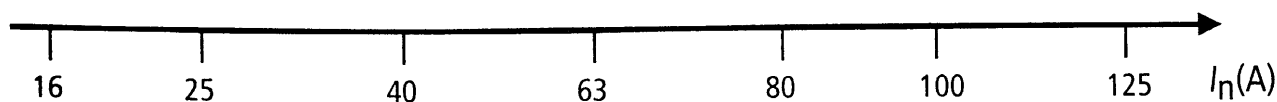


FI... Residual-Current Circuit-Breakers¹⁾

4-pole selective

4-pole

2-pole



¹⁾ = Earth leakage Circuit-Breaker (ELCB)

Miniature Circuit-Breakers, Residual-Current Circuit-Breakers (ELCB), Modular Installation Devices

Contents

Miniature circuit-breakers

FAZ miniature circuit-breakers

AZ high-capacity miniature circuit-breakers

FAZ miniature circuit-breakers with
FIM residual-current protection module
FILS combined RCD/MCB device

Residual-current circuit-breakers¹⁾

FIP, FIPS

FI, FIS

Add-on functions

Auxiliary contacts

Voltage releases

FAZ/FIP-XFSM remote switching module,
FIP-XPM test module

Modular installation devices

Impulse relays

Light intensity switch

Operating-hours counter, pulse counter

Three-phase power meter

Timers

Meters

Mounting accessories

Incoming terminals

Protective covers

FAZ/FIP-XVS busbar system

FAZ-XIS commoning busbars

Tripping characteristics

Tripping characteristics

Let-through characteristics

Technical data

Switchgear for North America

Dimensions

¹⁾ = Earth leakage Circuit-Breaker (ELCB)

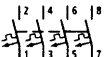
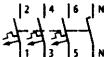
FAZ Miniature Circuit-Breakers

Switching Capacity 10 kA (IEC/EN 60 898)

		1-pole 			2-pole With 2 protected poles 		3-pole With 3 protected poles 	
Characteristic	Rated current	Type	Price		Type	Price	Type	Price
	I_n A	Article no.	See Price List	Std. pack	Article no.	See Price List	Article no.	See Price List
Miniature Circuit-Breakers FAZ								
B Response current of short-circuit release $3 - 5 \times I_n$	4	FAZ-B4HI 214570		12 off	FAZ-2-B4HI 214571		—	
	6	FAZ-B6 211352			FAZ-2-B6 211353		FAZ-3-B6 211354	
	10	FAZ-B10 211358			FAZ-2-B10 211359		FAZ-3-B10 211360	
	13	FAZ-B13 211364			FAZ-2-B13 211365		FAZ-3-B13 211366	
	16	FAZ-B16 211370			FAZ-2-B16 211371		FAZ-3-B16 211372	
	20	FAZ-B20 211376			FAZ-2-B20 211377		FAZ-3-B20 211378	
	25	FAZ-B25 211382			FAZ-2-B25 211383		FAZ-3-B25 211384	
	32	FAZ-B32 211388			FAZ-2-B32 211389		FAZ-3-B32 211390	
	40	FAZ-B40 211394			FAZ-2-B40 211395		FAZ-3-B40 211396	
	50	FAZ-B50 211400			FAZ-2-B50 211401		FAZ-3-B50 211402	
	63	FAZ-B63 211406			FAZ-2-B63 211407		FAZ-3-B63 211408	
C Response current of short-circuit release $5 - 10 \times I_n$	0.5	FAZ-C0,5 211474		12 off	FAZ-2-C0,5 211475		FAZ-3-C0,5 211476	
	1	FAZ-C1 211480			FAZ-2-C1 211481		FAZ-3-C1 211482	
	2	FAZ-C2 211486			FAZ-2-C2 211487		FAZ-3-C2 211488	
	3	FAZ-C3 211492			FAZ-2-C3 211493		FAZ-3-C3 211494	
	4	FAZ-C4 211498			FAZ-2-C4 211499		FAZ-3-C4 211500	
	6	FAZ-C6 211504			FAZ-2-C6 211505		FAZ-3-C6 211506	
	10	FAZ-C10 211510			FAZ-2-C10 211511		FAZ-3-C10 211512	
	13	FAZ-C13 211516			FAZ-2-C13 211517		FAZ-3-C13 211518	
	16	FAZ-C16 211522			FAZ-2-C16 211523		FAZ-3-C16 211524	
	20	FAZ-C20 211528			FAZ-2-C20 211529		FAZ-3-C20 211530	
	25	FAZ-C25 211534			FAZ-2-C25 211535		FAZ-3-C25 211536	
	32	FAZ-C32 211540			FAZ-2-C32 211541		FAZ-3-C32 211542	
	40	FAZ-C40 211546			FAZ-2-C40 211547		FAZ-3-C40 211548	
	50	FAZ-C50 211552			FAZ-2-C50 211553		FAZ-3-C50 211554	
	63	FAZ-C63 211558			FAZ-2-C63 211559		FAZ-3-C63 211560	

FAZ Miniature Circuit-Breakers

Switching Capacity 10 kA (IEC/EN 60 898)

4-pole With 4 protected poles		2-pole With 1 protected pole N switching with pole		4-pole With 3 protected poles N switching with poles		Std. pack
Type	Price	Type	Price	Type	Price	
Article no.	See Price List	Article no.	See Price List	Article no.	See Price List	
						
-		-		-		1 off
FAZ-4-B6		FAZ-1N-B6		FAZ-3N-B6		
211355		211356		211357		
FAZ-4-B10		FAZ-1N-B10		FAZ-3N-B10		
211361		211362		211363		
FAZ-4-B13		FAZ-1N-B13		FAZ-3N-B13		
211367		211368		211369		
FAZ-4-B16		FAZ-1N-B16		FAZ-3N-B16		
211373		211374		211375		
FAZ-4-B20		FAZ-1N-B20		FAZ-3N-B20		
211379		211380		211381		
FAZ-4-B25		FAZ-1N-B25		FAZ-3N-B25		
211385		211386		211387		
FAZ-4-B32		FAZ-1N-B32		FAZ-3N-B32		
211391		211392		211393		
FAZ-4-B40		FAZ-1N-B40		FAZ-3N-B40		
211397		211398		211399		
FAZ-4-B50		FAZ-1N-B50		FAZ-3N-B50		
211403		211404		211405		
FAZ-4-B63		FAZ-1N-B63		FAZ-3N-B63		
211409		211410		211411		
FAZ-4-C0,5		FAZ-1N-C0,5		FAZ-3N-C0,5		1 off
211477		211478		211479		
FAZ-4-C1		FAZ-1N-C1		FAZ-3N-C1		
211483		211484		211485		
FAZ-4-C2		FAZ-1N-C2		FAZ-3N-C2		
211489		211490		211491		
FAZ-4-C3		FAZ-1N-C3		FAZ-3N-C3		
211495		211496		211497		
FAZ-4-C4		FAZ-1N-C4		FAZ-3N-C4		
211501		211502		211503		
FAZ-4-C6		FAZ-1N-C6		FAZ-3N-C6		
211507		211508		211509		
FAZ-4-C10		FAZ-1N-C10		FAZ-3N-C10		
211513		211514		211515		
FAZ-4-C13		FAZ-1N-C13		FAZ-3N-C13		
211519		211520		211521		
FAZ-4-C16		FAZ-1N-C16		FAZ-3N-C16		
211525		211526		211527		
FAZ-4-C20		FAZ-1N-C20		FAZ-3N-C20		
211531		211532		211533		
FAZ-4-C25		FAZ-1N-C25		FAZ-3N-C25		
211537		211538		211539		
FAZ-4-C32		FAZ-1N-C32		FAZ-3N-C32		
211543		211544		211545		
FAZ-4-C40		FAZ-1N-C40		FAZ-3N-C40		
211549		211550		211551		
FAZ-4-C50		FAZ-1N-C50		FAZ-3N-C50		
211555		211556		211557		
FAZ-4-C63		FAZ-1N-C63		FAZ-3N-C63		
211561		211562		211563		

Notes

Switching capacity (IEC/EN 60 898) 10 kA

Switching capacity (IEC/EN 60 947-2) 15 kA

Accessories Page

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FAZ-B4HI, FAZ-2-B4HI
Special miniature circuit-breaker with drastically reduced let-through energy to prevent contact welding of auxiliary contacts

1-pole
Depth 71 mm
Width 17.5 mm



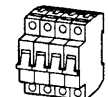
2-pole
Depth 71 mm
Width 35 mm



3-pole
Depth 71 mm
Width 52.5 mm



4-pole
Depth 71 mm
Width 70 mm



FAZ Miniature Circuit-Breakers

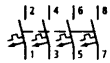
Switching Capacity 10 kA (IEC/EN 60 898)

Characteristic	Rated current I_n A	1-pole			Std. pack	2-pole With 2 protected poles			3-pole With 3 protected poles		
		Type	Article no.	Price See Price List		Type	Article no.	Price See Price List	Type	Article no.	Price See Price List
FAZ miniature circuit-breakers											
D	6	FAZ-D6	214572		12 off	FAZ-2-D6	214573		FAZ-3-D6	214574	
Response current of short-circuit release $10 - 20 \times I_n$	10	FAZ-D10	214577			FAZ-2-D10	214578		FAZ-3-D10	214579	
Switching capacity (IEC/EN 60 898) 10 kA	13	FAZ-D13	214582			FAZ-2-D13	214583		FAZ-3-D13	214584	
	16	FAZ-D16	214587			FAZ-2-D16	214588		FAZ-3-D16	214589	
Switching capacity (IEC/EN 60 947-2) 15 kA	20	FAZ-D20	214592			FAZ-2-D20	214593		FAZ-3-D20	214594	
	25	FAZ-D25	214597			FAZ-2-D25	214598		FAZ-3-D25	214599	
	32	FAZ-D32	214602			FAZ-2-D32	214603		FAZ-3-D32	214604	
	40	FAZ-D40	214607			FAZ-2-D40	214608		FAZ-3-D40	214609	
	AC miniature circuit-breakers for control circuit protection S	1	FAZ-S1	211739			FAZ-2-S1	211740		-	
Response current of short-circuit release $13 - 17 \times I_n$	2	FAZ-S2	211741			FAZ-2-S2	211742		-		
	3	FAZ-S3	211743			FAZ-2-S3	211744		-		
Switching capacity (IEC/EN 60 947-2) 4.5 kA	4	FAZ-S4	211745			FAZ-2-S4	211746		-		
	6	FAZ-S6	211747		FAZ-2-S6	211748		-			
	10	FAZ-S10	211749		FAZ-2-S10	211750		-			
	16	FAZ-S16	211751		FAZ-2-S16	211752		-			
	R	6	FAZ-R6	211712		FAZ-2-R6	211713		FAZ-3-R6	211714	
Response current of short-circuit release $2 - 3 \times I_n$	10	FAZ-R10	211715		FAZ-2-R10	211716		FAZ-3-R10	211717		
Switching capacity (IEC/EN 60 947-2) 6 kA	13	FAZ-R13	211718		FAZ-2-R13	211719		FAZ-3-R13	211720		
	16	FAZ-R16	211721		FAZ-2-R16	211722		FAZ-3-R16	211723		
	20	FAZ-R20	211724		FAZ-2-R20	211725		FAZ-3-R20	211726		
	25	FAZ-R25	211727		FAZ-2-R25	211728		FAZ-3-R25	211729		
	32	FAZ-R32	211730		FAZ-2-R32	211731		FAZ-3-R32	211732		
	40	FAZ-R40	211733		FAZ-2-R40	211734		FAZ-3-R40	211735		
	50	FAZ-R50	211736		FAZ-2-R50	211737		FAZ-3-R50	211738		

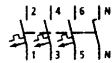
FAZ Miniature Circuit-Breakers

Switching Capacity 10 kA (IEC/EN 60 898)

4-pole
With 4 protected poles



4-pole
With 3 protected poles
N switching with poles



Type	Price	Type	Price	Std.
Article no.	See Price List	Article no.	See Price List	pack

FAZ-4-D6 214575		FAZ-3N-D6 214576		1 off
FAZ-4-D10 214580		FAZ-3N-D10 214581		
FAZ-4-D13 214585		FAZ-3N-D13 214586		
FAZ-4-D16 214590		FAZ-3N-D16 214591		
FAZ-4-D20 214595		FAZ-3N-D20 214596		
FAZ-4-D25 214600		FAZ-3N-D25 214601		
FAZ-4-D32 214605		FAZ-3N-D32 214606		
FAZ-4-D40 214610		FAZ-3N-D40 214611		

Miniature circuit-breakers for DC application

1-pole



2-pole
With 2 protected poles



Type	Price	Type	Price	Std.
Article no.	See Price List	Article no.	See Price List	pack

FAZ-C6-DC 211654		FAZ-2-C6-DC 211655		1 off
FAZ-C10-DC 211656		FAZ-2-C10-DC 211657		
FAZ-C13-DC 211658		FAZ-2-C13-DC 211659		
FAZ-C16-DC 211660		FAZ-2-C16-DC 211661		
FAZ-C20-DC 211662		FAZ-2-C20-DC 211663		
FAZ-C25-DC 211664		FAZ-2-C25-DC 211665		
FAZ-C32-DC 211666		FAZ-2-C32-DC 211667		
FAZ-C40-DC 211668		FAZ-2-C40-DC 211669		
FAZ-C50-DC 211670		FAZ-2-C50-DC 211671		

Accessories

Accessories	Page
Auxiliary contacts, voltage releases	12
Mounting accessories	16, 17
Maximum fitting capacity	25

1-pole
Depth 71 mm
Width 17.5 mm



2-pole
Depth 71 mm
Width 35 mm



3-pole
Depth 71 mm
Width 52.5 mm



4-pole
Depth 71 mm
Width 70 mm



For FAZ-...-DC

C characteristic

Short-circuit release
response current
 $7 - 14 \times I_n$

Switching capacity
6 kA ($L/R = 4$ ms)

Rated voltage
250 V DC per pole

Note polarity

AZ High-Capacity Miniature Circuit-Breakers

Switching Capacity 15 – 25 kA (IEC/EN 60 947-2)

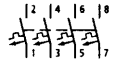
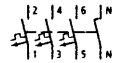
Characteristic	Rated current I_n A	1-pole			2-pole With 2 protected poles			3-pole With 3 protected poles		
		Type	Price	Std.	Type	Price	Std.	Type	Price	Std.
		Article no.	See Price List	pack	Article no.	See Price List	pack	Article no.	See Price List	pack
AZ high-capacity miniature circuit-breakers										
C Response current of short-circuit release $5 - 10 \times I_n$	20	AZ-C20 211769		12 off	AZ-2-C20 211770		12 off	AZ-3-C20 211771		1 off
	25	AZ-C25 211774			AZ-2-C25 211775			AZ-3-C25 211776		
	32	AZ-C32 211779			AZ-2-C32 211780			AZ-3-C32 211781		
	40	AZ-C40 211784			AZ-2-C40 211785			AZ-3-C40 211786		
	50	AZ-C50 211789			AZ-2-C50 211790			AZ-3-C50 211791		
	63	AZ-C63 211794			AZ-2-C63 211795			AZ-3-C63 211796		
	80	AZ-C80 211799			AZ-2-C80 211800			AZ-3-C80 211801		
	100	AZ-C100 211804			AZ-2-C100 211805			AZ-3-C100 211806		
D Response current of short-circuit release $10 - 20 \times I_n$	125	AZ-C125 211809		12 off	AZ-2-C125 211810		12 off	AZ-3-C125 211811		1 off
	50	AZ-D50 211814			AZ-2-D50 211815			AZ-3-D50 211816		
	63	AZ-D63 211818			AZ-2-D63 211819			AZ-3-D63 211820		
	80	AZ-D80 211822			AZ-2-D80 211823			AZ-3-D80 211824		
	100	AZ-D100 211826			AZ-2-D100 211827			AZ-3-D100 211828		

AZ High-Capacity Miniature Circuit-Breakers

Switching Capacity 15 – 25 kA (IEC/EN 60 947-2)

4-pole

With 4 protected poles

**4-pole**With 3 protected poles
N switching with poles**Type**

Article no.

PriceSee Price
List**Type**

Article no.

PriceSee Price
ListStd.
pack

AZ-4-C20 211772		AZ-3N-C20 211773		1 off
AZ-4-C25 211777		AZ-3N-C25 211778		
AZ-4-C32 211782		AZ-3N-C32 211783		
AZ-4-C40 211787		AZ-3N-C40 211788		
AZ-4-C50 211792		AZ-3N-C50 211793		
AZ-4-C63 211797		AZ-3N-C63 211798		
AZ-4-C80 211802		AZ-3N-C80 211803		
AZ-4-C100 211807		AZ-3N-C100 211808		
AZ-4-C125 211812		AZ-3N-C125 211813		
–		AZ-3N-D50 211817		1 off
–		AZ-3N-D63 211821		
–		AZ-3N-D80 211825		
–		AZ-3N-D100 211829		

Notes**Further data****Page**Switching capacity
see Technical Data

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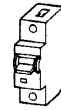
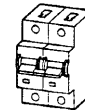
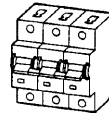
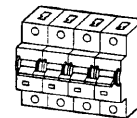
Accessories**Page**

Auxiliary contacts

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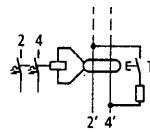
Mounting accessories

16, 17

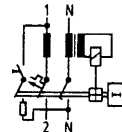
1-pole
Depth 75 mm
Width 27 mm2-pole
Depth 75 mm
Width 54 mm3-pole
Depth 75 mm
Width 81 mm4-pole
Depth 75 mm
Width 108 mm

FAZ Miniature Circuit-Breakers with FIM Residual-Current Protection Module, FILS Combined RCD/MCB Devices

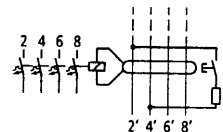
2-pole



2-pole



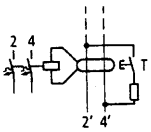
4-pole



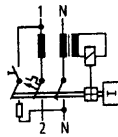
Characteristic	Rated current I_n A	Type Article no.	Price See Price List	Type Article no.	Price See Price List	Type Article no.	Price See Price List	Std. pack
Rated fault current $I_{\Delta N} = 30 \text{ mA}$								
B Response current of short-circuit release $3 - 5 \times I_n$	6	—		FILS-B6-0,03 211958		—		1 off
	10	FAZ-2-B10-FIM0,03 211830		FILS-B10-0,03 211960		FAZ-4-B10-FIM0,03 211832		
	16	FAZ-2-B16-FIM0,03 211834		FILS-B16-0,03 211962		FAZ-4-B16-FIM0,03 211836		
	20	FAZ-2-B20-FIM0,03 211838		FILS-B20-0,03 211964		FAZ-4-B20-FIM0,03 211840		
	25	FAZ-2-B25-FIM0,03 211842		FILS-B25-0,03 211966		FAZ-4-B25-FIM0,03 211844		
	32	FAZ-2-B32-FIM0,03 211846		FILS-B32-0,03 211968		FAZ-4-B32-FIM0,03 211848		
	40	FAZ-2-B40-FIM0,03 211850		FILS-B40-0,03 211970		FAZ-4-B40-FIM0,03 211852		
	50	FAZ-2-B50-FIM0,03 211854		—		FAZ-4-B50-FIM0,03 211856		
	63	FAZ-2-B63-FIM0,03 211858		—		FAZ-4-B63-FIM0,03 211860		
C Response current of short-circuit release $5 - 10 \times I_n$	6	—		FILS-C6-0,03 211972		—		1 off
	10	FAZ-2-C10-FIM0,03 211894		FILS-C10-0,03 211974		FAZ-4-C10-FIM0,03 211896		
	16	FAZ-2-C16-FIM0,03 211898		FILS-C16-0,03 211976		FAZ-4-C16-FIM0,03 211900		
	20	FAZ-2-C20-FIM0,03 211902		FILS-C20-0,03 211978		FAZ-4-C20-FIM0,03 211904		
	25	FAZ-2-C25-FIM0,03 211906		FILS-C25-0,03 211980		FAZ-4-C25-FIM0,03 211908		
	32	FAZ-2-C32-FIM0,03 211910		FILS-C32-0,03 211982		FAZ-4-C32-FIM0,03 211912		
	40	FAZ-2-C40-FIM0,03 211914		FILS-C40-0,03 211984		FAZ-4-C40-FIM0,03 211916		
	50	FAZ-2-C50-FIM0,03 211918		—		FAZ-4-C50-FIM0,03 211920		
	63	FAZ-2-C63-FIM0,03 211922		—		FAZ-4-C63-FIM0,03 211924		
Residual-current protection module								
	40	FIM-2-40-0,03 212023		—		FIM-4-40-0,03 212025		1 off
	63	FIM-2-63-0,03 212027		—		FIM-4-63-0,03 212029		1 off

FAZ Miniature Circuit-Breakers with FIM Residual-Current Protection Module, FILS Combined RCD/MCB Devices

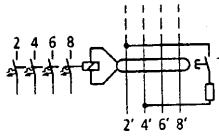
2-pole



2-pole



4-pole



Type Article no.	Price See Price List	Type Article no.	Price See Price List	Type Article no.	Price See Price List	Std. pack
Rated fault current $I_{\Delta N} = 300 \text{ mA}$						
—	—	FILS-B6-0,3 211959	—	—	—	1 off
FAZ-2-B10-FIM0,3 211831	—	FILS-B10-0,3 211961	—	FAZ-4-B10-FIM0,3 211833	—	—
FAZ-2-B16-FIM0,3 211835	—	FILS-B16-0,3 211963	—	FAZ-4-B16-FIM0,3 211837	—	—
FAZ-2-B20-FIM0,3 211839	—	FILS-B20-0,3 211965	—	FAZ-4-B20-FIM0,3 211841	—	—
FAZ-2-B25-FIM0,3 211843	—	FILS-B25-0,3 211967	—	FAZ-4-B25-FIM0,3 211845	—	—
FAZ-2-B32-FIM0,3 211847	—	FILS-B32-0,3 211969	—	FAZ-4-B32-FIM0,3 211849	—	—
FAZ-2-B40-FIM0,3 211851	—	FILS-B40-0,3 211971	—	FAZ-4-B40-FIM0,3 211853	—	—
FAZ-2-B50-FIM0,3 211855	—	—	—	FAZ-4-B50-FIM0,3 211857	—	—
FAZ-2-B63-FIM0,3 211859	—	—	—	FAZ-4-B63-FIM0,3 211861	—	—
—	—	FILS-C6-0,3 211973	—	—	—	—
FAZ-2-C10-FIM0,3 211895	—	FILS-C10-0,3 211975	—	FAZ-4-C10-FIM0,3 211897	—	—
FAZ-2-C16-FIM0,3 211899	—	FILS-C16-0,3 211977	—	FAZ-4-C16-FIM0,3 211901	—	—
FAZ-2-C20-FIM0,3 211903	—	FILS-C20-0,3 211979	—	FAZ-4-C20-FIM0,3 211905	—	—
FAZ-2-C25-FIM0,3 211907	—	FILS-C25-0,3 211981	—	FAZ-4-C25-FIM0,3 211909	—	—
FAZ-2-C32-FIM0,3 211911	—	FILS-C32-0,3 211983	—	FAZ-4-C32-FIM0,3 211913	—	—
FAZ-2-C40-FIM0,3 211915	—	FILS-C40-0,3 211985	—	FAZ-4-C40-FIM0,3 211917	—	—
FAZ-2-C50-FIM0,3 211919	—	—	—	FAZ-4-C50-FIM0,3 211921	—	—
FAZ-2-C63-FIM0,3 211923	—	—	—	FAZ-4-C63-FIM0,3 211925	—	—
FIM-2-40-0,3 212024	—	—	—	FIM-4-40-0,3 212026	—	1 off
FIM-2-63-0,3 212028	—	—	—	FIM-4-63-0,3 212030	—	1 off

Notes

Pulse-current sensitive,
surge-proof up to 250 A

Accessories Page

Auxiliary contacts, volt- 12

age releases

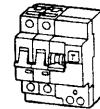
Mounting accessories 16, 17

FAZ-...-FIM

2-pole

Depth 71 mm

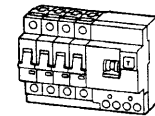
Width 70 mm



4-pole

Depth 71 mm

Width 125 mm

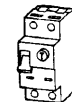


FILS-...

2-pole

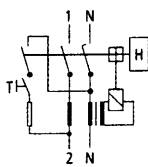
Depth 71 mm

Width 35 mm

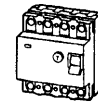
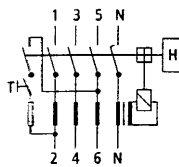
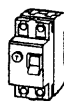


FIP, FIPS Residual-Current Circuit-Breakers or Earth Leakage Circuit-Breakers (ELCB)

2-pole



4-pole



Rated unin-
interrupted
current
 I_u
A

Type
Article no.

Price
See Price
List

Type
Article no.

Price
See Price
List

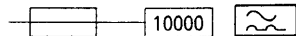
Type
Article no.

Price
See Price
List

Std.
pack

FIP, FIPS Residual-Current Circuit-Breakers or Earth Leakage Circuit-Breakers (ELCB)

Pulse-current sensitive



Surge-proof up to 250 A

selective¹⁾ and surge-proof 5 kA

With rated fault current
 $I_{\Delta N} = 30 \text{ mA}$

16	FIP-2-16-0,03 212004		—		—	
25	FIP-2-25-0,03 212005		FIP-4-25-0,03 212011		—	
40	FIP-2-40-0,03 212008		FIP-4-40-0,03 212015		—	
63	—		FIP-4-63-0,03 212148		—	
80	—		FIP-4-80-0,03 212152		—	
100	—		FIP-4-100-0,03 212155		—	
125	—		FIP-4-125-0,03 212158		—	

1 off

With rated fault current
 $I_{\Delta N} = 100 \text{ mA}$

25	FIP-2-25-0,1 212006		FIP-4-25-0,1 212012		—	
40	FIP-2-40-0,1 212009		FIP-4-40-0,1 212016		—	
63	—		FIP-4-63-0,1 212149		FIPS-4-63-0,1 212019	

With rated fault current
 $I_{\Delta N} = 300 \text{ mA}$

25	FIP-2-25-0,3 212007		FIP-4-25-0,3 212013		—	
40	FIP-2-40-0,3 212010		FIP-4-40-0,3 212017		—	
63	—		FIP-4-63-0,3 212150		FIPS-4-63-0,3 212020	
80	—		FIP-4-80-0,3 212153		FIPS-4-80-0,3 212021	
100	—		FIP-4-100-0,3 212156		—	
125	—		FIP-4-125-0,3 212159		—	

With rated fault current
 $I_{\Delta N} = 500 \text{ mA}$

25	—		FIP-4-25-0,5 212014		—	
40	—		FIP-4-40-0,5 212018		—	
63	—		FIP-4-63-0,5 212151		—	
80	—		FIP-4-80-0,5 212154		—	
100	—		FIP-4-100-0,5 212157		—	
125	—		FIP-4-125-0,5 212160		—	

Notes

¹⁾ The rated fault current of the higher-level residual-current circuit-breaker must be greater by at least the factor of 3. The time delay is greater than 40 ms.

Accessories

Page

Auxiliary contacts

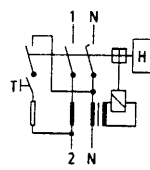
12

Mounting
accessories

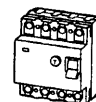
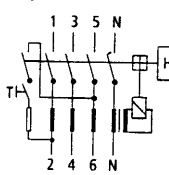
16, 17

FI, FIS Residual-Current Circuit-Breakers or Earth Leakage Circuit-Breakers (ELCB)

2-pole



4-pole



Rated unin-
terrupted
current
 I_u
A

Type
Article no.

Price
See Price
List

Type
Article no.

Price
See Price
List

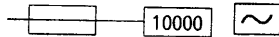
Type
Article no.

Price
See Price
List

Std.
pack

FI, FIS Residual-Current Circuit-Breakers or Earth Leakage Circuit-Breakers (ELCB)

alternative-current sensitive



Surge-proof up to 250 A

selective¹⁾ and surge-proof 5 kA

With rated fault current $I_{\Delta N} = 30 \text{ mA}$		surge proof up to 250 A		selective ¹⁾ and surge-proof 5 kA		1 off
16	FI-2-16-0,03 211986		-		-	
25	FI-2-25-0,03 211987		FI-4-25-0,03 211993		-	
40	FI-2-40-0,03 211990		FI-4-40-0,03 211997		-	
63	FI-2-63-0,03 218940		FI-4-63-0,03 212142		-	
80	FI-2-80-0,03 218941		FI-4-80-0,03 212146		-	
With rated fault current $I_{\Delta N} = 100 \text{ mA}$		25	FI-2-25-0,1 211988	FI-4-25-0,1 211994	-	
	40	FI-2-40-0,1 211991	FI-4-40-0,1 211998		-	
	63	FI-2-63-0,1 218942	FI-4-63-0,1 212143		FIS-4-63-0,1 212001	
	80	FI-2-80-0,1 218943	FI-4-80-0,1 218944		-	
With rated fault current $I_{\Delta N} = 300 \text{ mA}$		25	FI-2-25-0,3 211989	FI-4-25-0,3 211995	-	
	40	FI-2-40-0,3 211992	FI-4-40-0,3 211999		-	
	63	-	FI-4-63-0,3 212144		FIS-4-63-0,3 212002	
	80	-	FI-4-80-0,3 212147		FIS-4-80-0,3 212003	
With rated fault current $I_{\Delta N} = 500 \text{ mA}$		25	-	FI-4-25-0,5 211996	-	
	40	-	FI-4-40-0,5 212000		-	
	63	-	FI-4-63-0,5 212145		-	

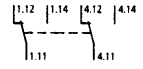
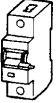
Notes

¹⁾ The rated fault current of the higher-level residual-current circuit-breaker must be greater by at least the factor of 3. The time delay is greater than 40 ms.

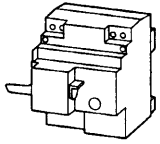
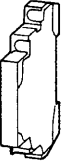
Accessories	Page
Auxiliary contacts	12
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Add-On Functions

Auxiliary Contacts, Shunt Releases

Contact sequence	Contacts	Rated unin- ter- rupted current I_u A	Rated opera- tional voltage U_e V	Space unit PLE 1 PLE = 18 mm	Type suffix When ordered with basic unit Article no.	Price See Price List	Type When ordered separately Article no.	Price See Price List	Std. pack
Auxiliary contacts and voltage releases									
Standard auxiliary contacts for FAZ, FIP, FI 	1 M/B	6	AC 250	0.5	+FAZ/FIP-XHI11 212064		FAZ/FIP-XHI11 212063		8 off
	1 M/B	6	AC 230 DC 230	0.5	—		FIP100/125- XHI11 211305		1 off
Trip-indicating auxiliary contacts for FAZ, FIP, FI 	2 C	1	AC 230	0.5	+FAZ/FIP- XRHI002 212066		FAZ/FIP- XRHI002 212065		10 off
Unvoltage re- leases for FAZ 			AC 115	1	+FAZ- XUA(115VAC) 212050		FAZ- XUA(115VAC) 212049		7 off
			AC 230	1	+FAZ- XUA(230VAC) 212052		FAZ- XUA(230VAC) 212051		
			AC 400	1	+FAZ- XUA(400VAC) 212054		FAZ- XUA(400VAC) 212053		
Shunt releases for FAZ 			AC 110-415	1	+FAZ-XAA (110-415VAC) 212056		FAZ-XAA (110-415VAC) 212055		7 off
			AC 12-110	1	+FAZ-XAA (12-110VAC) 212058		FAZ-XAA (12-110VAC) 212057		7 off
Standard auxiliary contacts for AZ 	1 M/B	6	AC 250	0.5	+AZ-XHI11 212068		AZ-XHI11 212067		8 off
Shunt releases for AZ 			AC 110-415	1.5	+AZ-XAA (110-415VAC) 212060		AZ-XAA (110-415VAC) 212059		8 off
			AC 12-60	1.5	+AZ-XAA (12-60VAC) 212062		AZ-XAA (12-60VAC) 212061		8 off

FAZ/FIP-X FSM Remote Switching Module, FIP-XPM Test Module

	Rated fault current $I_{\Delta N}$	Type Article no.	Type suffix Article no.	Price See Price List	Std. pack
FAZ/FIP-XFSM remote switching module					
		FAZ/FIP-XFSM 212069	+FAZ/FIP-XFSM 215334		1 off
FIP-XPM test module					
	30 mA	FIP-XPM0,03 212070	+FIP-XPM0,03 215335		1 off
	100 mA	FIP-XPM0,1 212071	+FIP-XPM0,1 215336		
	300 mA	FIP-XPM0,3 212072	+FIP-XPM0,3 215337		
	500 mA	FIP-XPM0,5 212073	+FIP-XPM0,5 215338		

Notes

FAZ/FIP-XFSM Remote Switching Module

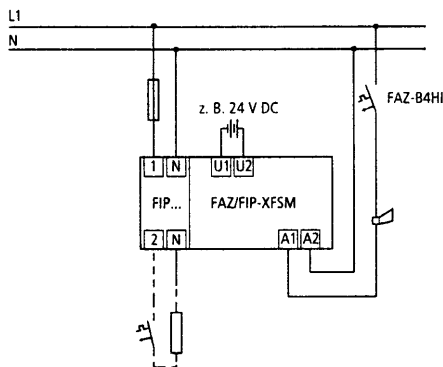
- For remote switching and automatic re-closing of FAZ miniature circuit-breakers and FIP(S) residual-current circuit-breakers
- For remote testing of residual-current protection devices in conjunction with the FIP-XPM test module
- Can be mechanically interlocked and sealed.
- LED indication of operational status and alarm status
- Mechanical switching capacity up to FAZ-4-... 63 or up to FIP(S)-4-80
- Rated operational voltage 24 – 240 V AC, 24 – 80 V DC
- Control voltage for remote control 24 – 230 V AC/DC
- Relay output for tripping test 400 V AC
- Terminal capacity 2 × 1.5 mm², 1 × 2.5 mm²
- Mechanical/electrical lifespan 10 000 switching operations
- Own power consumption 5 W

FIP-XPM Test Module

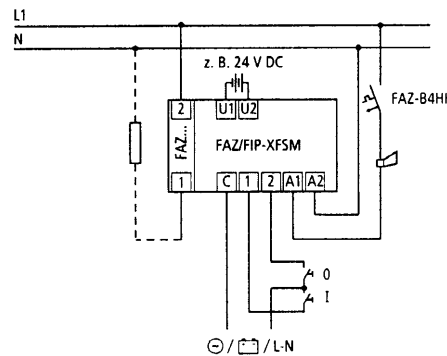
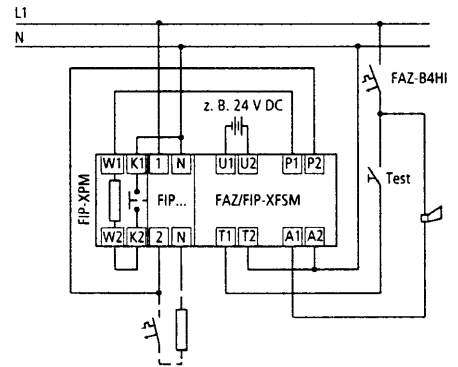
- External test module with defined test impedance corresponding to the rated fault current of the residual-current circuit-breaker
- Enables remote testing according to the Standard
- Suitable for remote tripping of residual-current circuit-breakers

Circuit examples: (Not installation instructions!)

Automatic reset (1 × or 5 ×):
(max. 5 s; 10 s; 1 min; 10 min; 1 h)



After unintended tripping or a brief disruption, the installation is immediately ready for renewed operation.

REMOTE SWITCHING:**REMOTE TRIPPING TEST:**
(Testing possible via alarm or auxiliary contact)

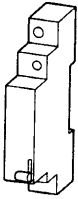
Function control of residual-current circuit-breakers as if by pressing the test button (electrically equivalent).

Modular Installation Devices

Impulse Relays, Light Intensity Switches, Counters, Meters

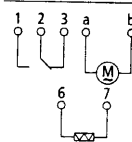
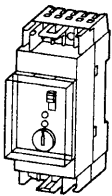
Contact sequence	Rated un-interrupted current I_n A	Actuating voltage 50/60 Hz V AC	Type Article no.	Price See Price List	Std. pack
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Impulse relay



with 1 make contact		16	24	REG-SS10-24 212102	12 off
		16	230	REG-SS10-230 212103	
with 2 make contacts		16	24	REG-SS20-24 212104	
		16	230	REG-SS20-230 212105	

Light intensity switch



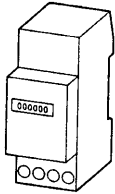
230

REG-DS-ST
212076

1 off

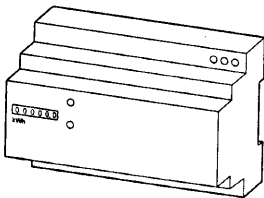
- Rated current 16 A
- Own power consumption about 2 VA
- Switching contact: 1 changeover switch
- Setting ranges: 2 – 100, 2 – 1000, 2 – 10000 lux

Operational hours counter/pulse counter



5 + 1 digits	230	REG-BSZ230 212080	1 off	• Terminal capacity: 1 – 2.5 mm², 2 × 1 – 2.5 mm² • no reset facility
	24	REG-BSZ24 212081		
6 digits	230	REG-IZ230 212082		

Three-phase power meter



6 digits Transformer connection .../5 A	230/400	REG-KWH400 212084	1 off
6 digits Direct connection .../25 A	230/400	REG-KWH400-25 212085	1 off

- Suitable for uneven loading
- Auxiliary voltage 230 V AC
- no reset facility
- With down-counter block
- Not suitable for certification by electricity supply companies as power consumption measuring device
- Accuracy Class 2

		Actuating voltage	Type	Price	
		50/60 Hz V AC	Article no.	See Price List	Std. pack
Timers, analog 2 space units					
	Synchron/day	230	REG-SUAS-D 212086		1 off
	Synchron/week		REG-SUAS-W 212087		
	Quartz/day		REG-SUAQ-D 212088		
	Quarz/week		REG-SUAQ-W 212089		
Timers, digital 2 space units					
	Day, 1 channel	230	REG-SUD-D 212090		1 off
	Week, 1 channel	230	REG-SUD-W1K 212091		
	Week 2 channels	230	REG-SUD-W2K 212092		
Meters, analog 4 space units					
	Ammeter 0 – 10 A		REG-AMA10 212095		1 off
	Ammeter 0 – 40 A		REG-AMA40 212096		
	Volt meter 0 – 250 V		REG-VMA250 212097		
	Volt meter 0 – 500 V		REG-VMA500 212098		
Meters, digital 4 space units					
	Ammeter 0 – 20 A		REG-AMD20 212099		1 off
	Ammeter with range selection 0 – 999 A/5 A		REG-AMD999 212100		
	Volt meter 0 – 600 V		REG-VMD600 212101		

- Rated current of switching contact 16 A
- Operational voltage 100 – 240 V
- Min. switching interval 30 min

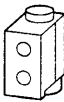
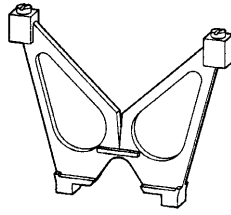
- Rated current of switching contact 16 A
- Min. switching interval 1 minute/1 second
- 20 freely configurable switching blocks ON + OFF
- With direct manual switching of relay
- Switching via 1 – 99 s

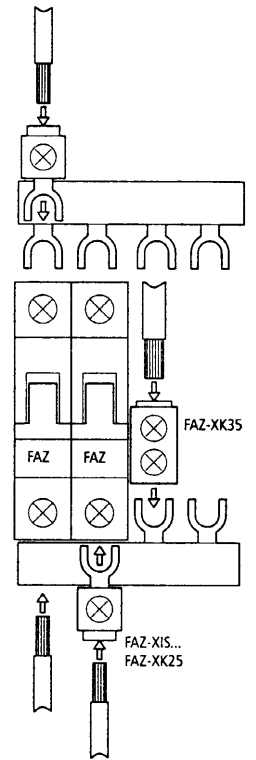
- Measuring accuracy Class 1.5
- Moving-iron ammeter
- Terminal capacity
Volt meter: 1 – 4 mm²
Ammeter: 1 – 6 mm²

- Measuring accuracy Class 1
- Own power consumption 4.5 VA
- Auxiliary voltage 115/230 V

Mounting Accessories

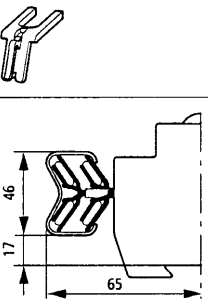
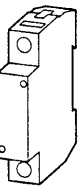
Incoming Terminals, Protective Covers

	Type Article no.	Price See Price List	Std. pack
Incoming Terminals			
Up to 25 mm ² Touch-proff connection to miniature circuit-breaker with busbar	FAZ-XK25 212116		50 off
			
Up to 35 mm ² Touch-proff connection to FAZ-XIS... busbar	FAZ-XK35 212119		10 off
			
Protective covers			
For shrouding unused terminals on the busbar	FAZ-XBS 212120		10 sets 5 per set
			
Bracket for fixing covers 2 off required per group of MCBs	REG-BB 212106		20 off
			



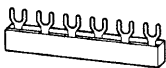
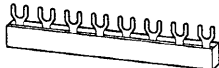
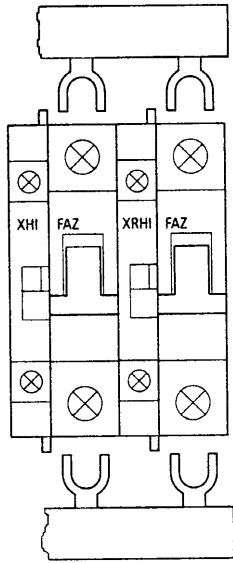
Mounting Accessories

FAZ/FIP-XVS Busbar System

	Rated operational current I_e A	Type Article no.	Price See Price List	Std. pack
FAZ/FIP-XVS busbar system				
• Suitable for any residual-current circuit-breaker/auxiliary contact combination • Also suitable for busbar connection between DIL00(A)M contactors, T rotary switches, P1, P3 switch-disconnectors and PKZ motor-protective circuit-breakers. • Two different busbar cross-sections: 50 A 16 mm² Cu and 80 A 25 mm² Cu. • Rated voltage/short-circuit rating 400 V/15 kA 480 V/10 kA				
	Busbar, 50 A 1 m	50	FAZ/FIP-XVS-VS5 212112	1 off
	Busbar, 80 A 1 m	80	FAZ/FIP-XVS-VS8 212115	1 off
	Extension terminal L1, N	80	FAZ/FIP-XVS-8-1 212113	10 off
	Extension terminal L2, L3	80	FAZ/FIP-XVS-8-2 212114	10 off
	Cover 1 m		FAZ/FIP-XVS-ADP 212107	1 off
	End cap		FAZ/FIP-XVS-EK 212108	10 off
	Feeder block Max. 125 A when used as centre feed		FAZ/FIP-XVS-KL 212109	12 off

Mounting accessories

Commoning Busbars

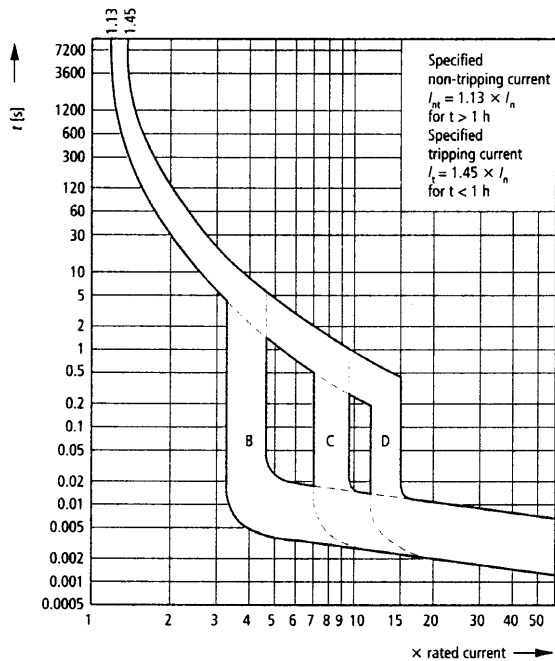
	Poles	MCBs	Rated operational current	Type Article no.	Price See Price List	Std. pack	
	Qty.	Qty.	I_e A				
Commoning busbars							
For miniature circuit-breakers without auxiliary contacts							
Fork connectors for combination box terminals	1	2	85	FAZ-XIS1/2 212121		20 off	$I_e = 85$ A, terminal capacity 25 mm ² at ambient temperature 50 °C $I_e = 100$ A, terminal capacity 35 mm ² at ambient temperature 50 °C $I_e = 120$ A, terminal capacity 35 mm ² at ambient temperature 40 °C
	1	6	85	FAZ-XIS1/6 212122			
	1	12	85	FAZ-XIS1/12 212123			
	2 ¹⁾	4	120	FAZ-XIS2/4 212124		10 off	
	2 ¹⁾	6	120	FAZ-XIS2/6 212125			
	2 ¹⁾	12	120	FAZ-XIS2/12 212126			
	3	6	120	FAZ-XIS3/6 212127			
	3	12	120	FAZ-XIS3/12 212128			
	4 ¹⁾	8	120	FAZ-XIS4/8 212129		5 off	
	4 ¹⁾	12	120	FAZ-XIS4/12 212130		5 off	
For miniature circuit-breakers with auxiliary contacts							
	1	2	85	FAZ-XIS1/2-HI 212131		1 off	
	1	6	85	FAZ-XIS1/6-HI 212132			
	1	9	85	FAZ-XIS1/9-HI 212133			
	2	4	120	FAZ-XIS2/4-HI 212134			
	2	6	120	FAZ-XIS2/6-HI 212135			
	2	10	120	FAZ-XIS2/10-HI 212136			
	3	6	120	FAZ-XIS3/6-HI 212137			
	3	12	120	FAZ-XIS3/12-HI 212138			
	3 ²⁾	6	120	FAZ-XIS31/6-HI 212139			
	3 ²⁾	8	120	FAZ-XIS31/8-HI 212140			
	3 ²⁾	9	120	FAZ-XIS31/9-HI 212141			

Notes

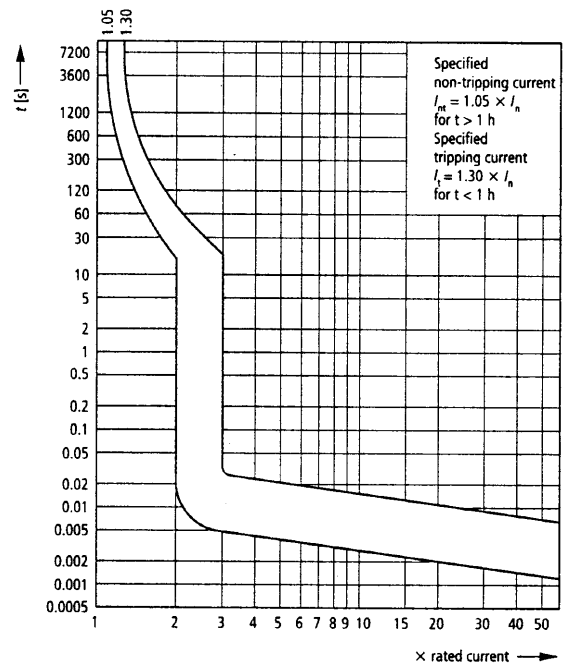
- ¹⁾ 2-pole and 4-pole versions can also be used for residual-current circuit-breakers.
²⁾ 1 auxiliary contact per pole

FAZ Miniature Circuit-Breakers, AZ High-Capacity Miniature Circuit-Breakers

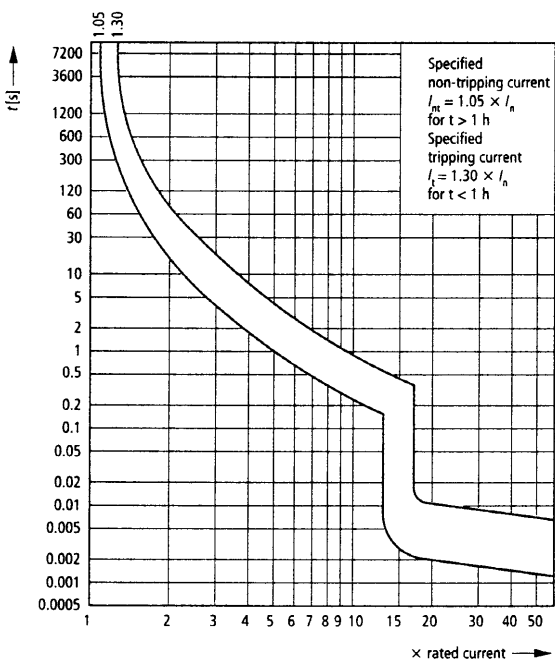
Tripping Characteristics

FAZ tripping characteristic at 30 °C: B, C, D to IEC/EN 60 898¹⁾

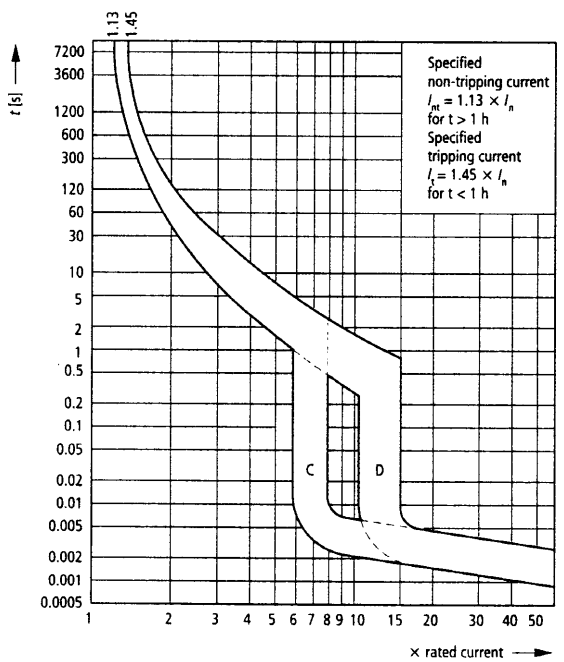
FAZ tripping characteristic at 30 °C: R to IEC/EN 60 947



FAZ tripping characteristic at 30 °C: S to IEC/EN 60 947



AZ tripping characteristic at 30 °C: C, D to IEC/EN 60 898



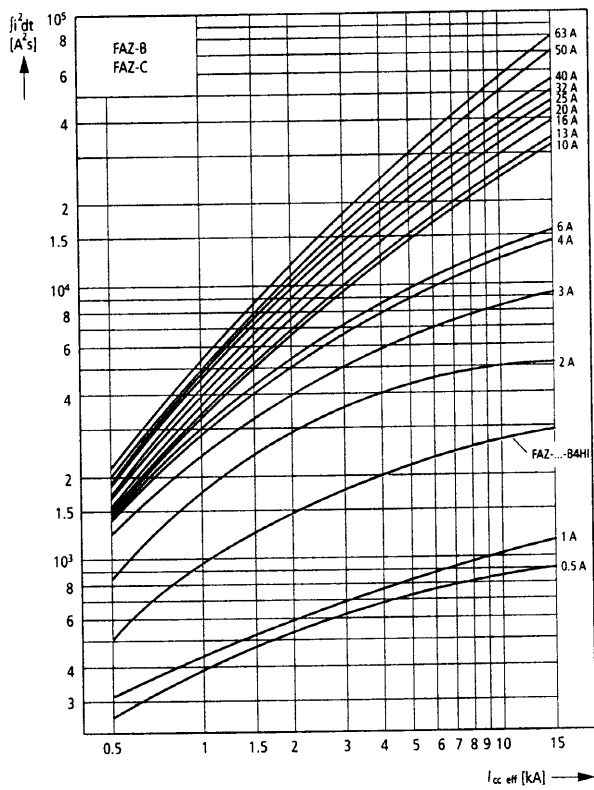
1) The tripping characteristics for MCBs are defined in the IEC/EN 60 898. The tolerances of Moeller MCBs' tripping characteristics have been defined more precisely.

FAZ Miniature Circuit-Breakers

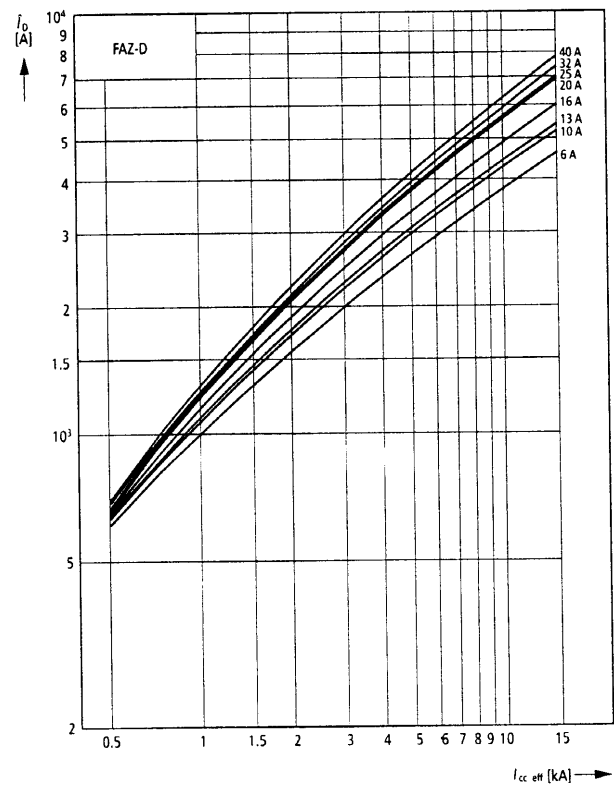
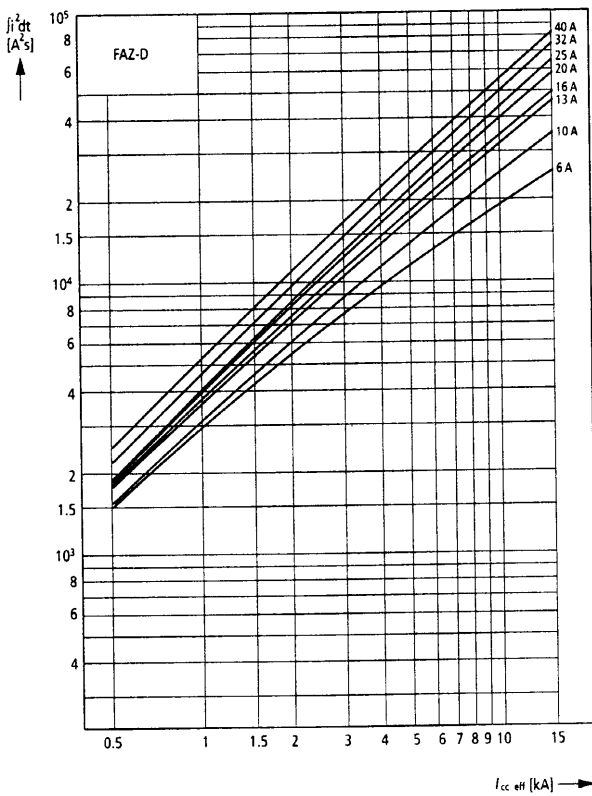
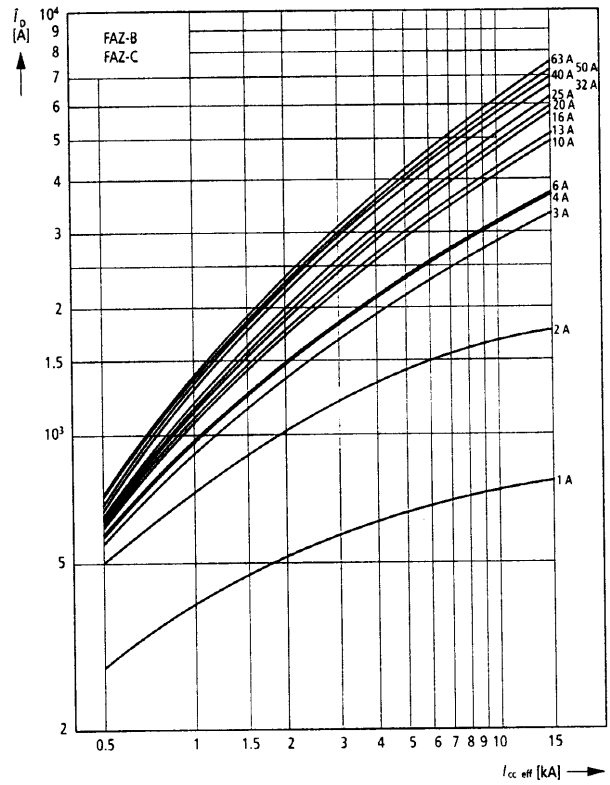
Let-Through Characteristics

Let-through energy I^2t /let-through current I_D
Determined in accordance with IEC/EN 60 898

Let-through energy I^2t



Let-through current I_D

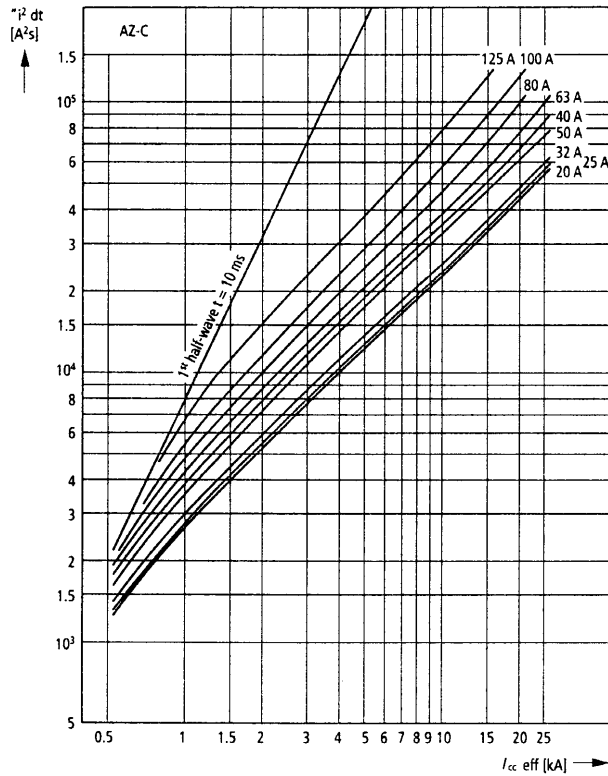


AZ High-Capacity Miniature Circuit-Breakers

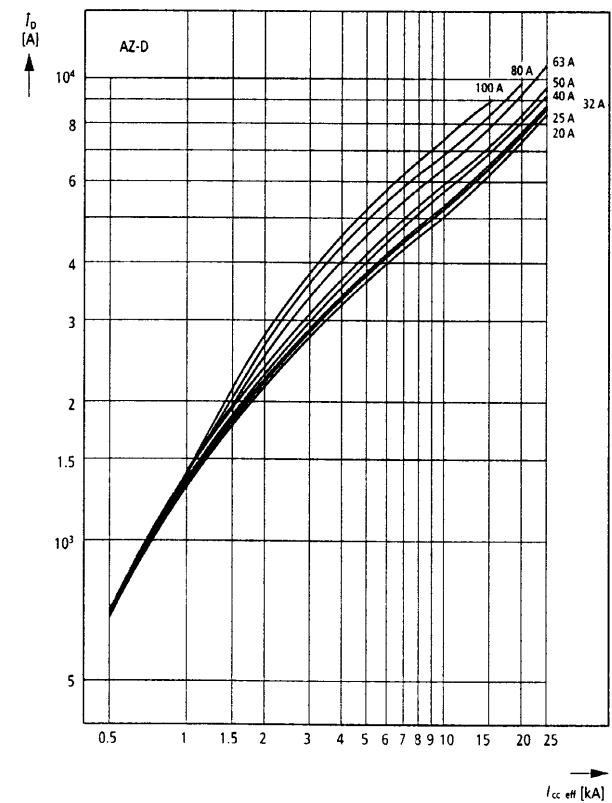
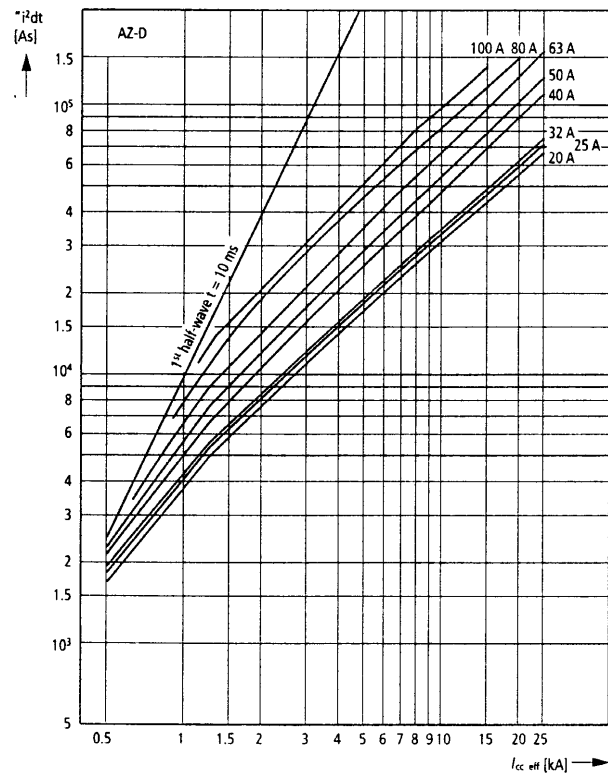
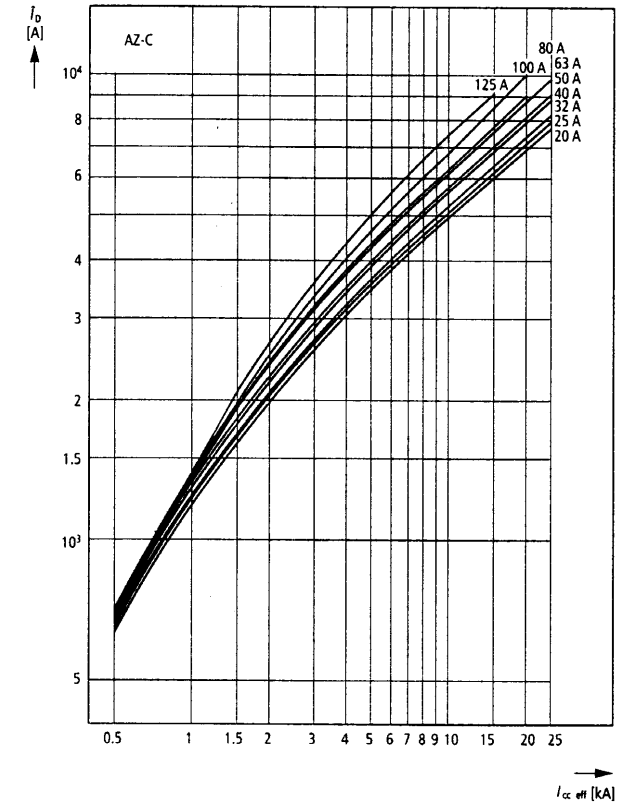
Let-Through Characteristics

Let-through energy I^2t /let-through current I_D
Determined in accordance with IEC/EN 60 898

Let-through energy I^2t



Let-through current I_D



Miniature Circuit-Breakers

Technical Data

Miniature circuit-breakers				FAZ	AZ
General					
Standards				IEC/EN 60 898	
B, C, D characteristics				IEC/EN 60 947-2	
S, R characteristics					
Ambient temperature	Min./Max.	°C	-5/+40		
Influence of ambient temperature on rated current					
(Ref. 30 °C)			%/K	→ Page 25	–
Mech. shock resistance (shock duration 20 ms)			g	10	20
Mounting position/direction of incoming supply				As required	
Protection against electric shock to IEC 536				Finger- and back-of-hand proof	
Degree of protection (terminals)				IP 20 (IP 00), IP 30 when fitted in distribution board	
Dimensions				→ Page 29	
Weight per pole			kg	0.12	0.24
Terminal capacity					
Solid, stranded		Min./Max.	mm ²	1/25; 2 × 1	1/35; 2 × 1
Tightening torque			Nm	2.4	3.0
Contacts					
Rated current I_n = rated uninterrupted current I_u			A	0.5 – 63	20 – 125
Rated impulse withstand voltage U_{imp}			V	4000	
Rated insulation voltage U_i			V AC	440	
Overvoltage category/pollution degree				III/3	III/2
Rated operational voltage U_e			V AC ³⁾	230/400; 240/415	
DC 1-pole/2-pole			V DC	250/500 ¹⁾	Up to 60
Rated frequency			Hz	50 – 60	
Switching capacity					
Rated short-circuit breaking capacity I_{cn}					
IEC/EN 60 898					
230/400 V AC	B, C, D 0.5 – 50	kA	10/10	–	
240/415 V AC	B, C 63	kA	10/8	–	
40 V DC ²⁾	B, C, D 0.5 – 50	kA	10	–	
	B, C 63	kA	8	–	
Rated ultimate short-circuit breaking capacity I_{cu}					
IEC/EN 60 947-2					
230/400 V AC	B, C, D 0.5 – 63	kA/cos φ	15/0.5	25/0.25	
	C, D 80/100	kA/cos φ	–	20/0.3	
	C 125	kA/cos φ	–	15/0.5	
	R 6 – 50	kA/cos φ	6/0.7	–	
	S 1 – 16	kA/cos φ	4.5/0.8	–	
Up to 250 V DC ¹⁾	1-pole	kA	6	–	
Up to 500 V DC ¹⁾	2-pole	kA	6	–	
Lifespan, mechanical	Operations		≥ 7000	≥ 10000	
(1 operation = 2 switching movements)					
Selectivity					
Power-limiting class to IEC/EN 60 898 B, C, D characteristics 0.5 – 32 A			3		
Back-up protection					
Using LV h.b.c. fuses 200/100 A gL			kA	–/100	100/100

Notes

¹⁾ FAZ-C...-DC

²⁾ FAZ-...B(C, D)...

³⁾ AC version max. 40 V DC, only B, C, D characteristics

Miniature Circuit-Breakers

Technical Data

Residual-current protection module			FIM-40	FIM-63	FILS
General					
Standards			IEC/EN 61 009		
Ambient temperature	Min./Max.	°C	-5/+40		
Mounting position/direction of incoming supply			As required		
Degree of protection (terminals)			IP 20 (IP 00), IP 30 when fitted in distribution board		
Dimensions			→ Page 29		
Weights FAZ-...FIM/FILS	2-pole	kg	0.48		0.22
	4-pole	kg	0.82		–
Terminal capacity					
Solid	Min./Max.	mm ²	1/25; 2 × 1		
Tightening torque		Nm	2.4	3.0	2.4
Contacts					
Rated uninterrupted current I_u	A		40	63	6 – 40
Rated impulse withstand voltage U_{imp}	V		4000		
Rated operational voltage U_e	V AC		240/415		230
Rated frequency	Hz		50 – 60		
Rated insulation voltage U_i	V AC		440		
Heat dissipation 2-pole/4-pole	VA		10.2/20.4		→ Page 24, 25
Switching capacity					
Rated short-circuit breaking capacity I_{cn}					
IEC/EN 60 898	B, C 6 – 40	kA	–		10
Releases					
Rated fault current $I_{\Delta n}$	A		0.03/0.3		
Tripping time t_a					
at $I_{\Delta} = I_{\Delta n}$	ms		≤ 200		
at $I_{\Delta} = 5 \times I_{\Delta n}$	ms		≤ 40		
Peak withstand current (lightning current 8/20)	A		250		
Working voltage range of test device (-15%/+10%)	V AC		230 – 415		184 – 253
Lifespan, mechanical and electrical			See FAZ		See FAZ/FIP

Miniature Circuit-Breakers

Technical Data

Auxiliary contacts, voltage releases				FAZ/ FIP-XHI 11 FAZ/ FIP-XRHI002	FAZ-XUA	FAZ-XAA	AZ-XHI 11	AZ-XAA
General				IP 20 (IP 00), IP 30 when fitted in distribution board → Page 29				
Degree of protection (terminals)								
Dimensions								
Weights		kg		0.045	0.155	0.155	0.04	0.095
Terminal capacity								
Solid/stranded	Min./Max.	mm ²		0.5/4; 2 × 0.5/2.5	0.5/4; 2 × 0.5/2.5	1/25; 2 × 1/4	1/25; 2 × 1/4	
Tightening torque		Nm		0.8	0.8	2.4	2.4	2.4
Auxiliary contacts								
Rated insulation voltage U_i		V AC		440(XHI)/ 250(XRHI)	440	440	440	440
Rated operational current I_e XHI/XRHI								
AC-12	250 V	A		-/2	-	-	-	-
AC-13	250 V	A		6/-	-	-	6	-
	440 V	A		2/-	-	-	2	-
AC-15	230 V	A		-/1	-	-	-	-
DC-12	110 V	A		-/0.5	-	-	-	-
DC-13	60 V	A		4/-	-	-	4	-
	110 V	A		2/-	-	-	2	-
	230 V	A		0.5/-	-	-	0.5	-
Safe isolation to VDE 0106 Part 101 and 101 A1 between auxiliary contacts and main contacts		V AC		440	-	-	440	-
Minimum pulse duration		ms		-	>15	-	-	>15
Minimum command time		ms		-	-	≤100 ms	-	-
Max. short-circuit protective device								
Fuseless	Type			FAZ-B4HI			FAZ-B4HI	
Fuse	gL, gG	A		4	Inherently short-circuit proof	Inherently short-circuit proof	4	Inherently short-circuit proof
Lifespan, mechanical	Operations			≥6000	>10000	>4000	≥6000	>4000
Coil								
Rated operational voltage U_e	Type: FAZ-XUA	V AC		-	115/230/400	-	-	
	Type 1: (F)AZ-XAA	V AC		-	-	110 – 435	-	110 – 415
		V DC		-	-	110 – 230	-	110 – 220
	Type 2: (F)AZ-XAA	V DC		-	-	12 – 110	-	12 – 60
		V AC		-	-	24 – 60	-	12 – 60
Undervoltage releases								
Drop-out voltage		× U_s		-	0.7 – 0.35	-	-	
Inrush current	Pick-up	A (AC/DC)		-	3.6/44	-	-	-
Shunt release								
Operating range		× U_s		-	-	0.7 – 1.1	-	-
Inrush current	Pick-up	A (AC)		-	-	25/12 ms	-	38/2.1 ms
		A (DC)		-	-	15/3 ms	-	34/2 ms

Notes

Miniature Circuit-Breakers

Technical Data

Heat dissipation		Influence of the ambient temperature on the thermal tripping characteristic						
FAZ B, C, D		The table shows the corrected values of the rated current dependent on the ambient temperature.						
		Example: To maintain the specified tripping times at an ambient temperature of 60 °C, with rated current 10 A a miniature circuit-breaker suitable for 13 A must be used.						
Rated heat dissipation/pole	Reference temperature	Ambient temperature						
I_n [A]	[W]	30 °C	35 °C	40 °C	45 °C	50 °C	55 °C	60 °C
0.5	1.2	0.5	0.5	0.5	0.5	0.5	0.5	0.4
1	1.3	1	1.0	1.0	0.9	0.9	0.9	0.9
2	1.4	2	2.0	1.9	1.9	1.8	1.8	1.8
3	1.2	3	2.9	2.9	2.8	2.8	2.7	2.6
4	1.2	4	3.9	3.8	3.8	3.7	3.6	3.5
6	1.8	6	5.9	5.8	5.6	5.5	5.4	5.3
10	2.1	10	9.8	9.6	9.4	9.2	9.0	8.8
13	2.3	13	12.7	12.5	12.2	12.0	11.7	11.4
16	2.0	16	15.7	15.4	15.0	14.7	14.4	14.1
20	2.9	20	19.6	19.2	18.8	18.4	18.0	17.6
25	3.1	25	24.5	24.0	23.5	23.0	22.5	22.0
32	3.1	32	31.4	30.7	30.1	29.4	28.8	28.2
40	4.2	40	39.2	38.4	37.6	36.8	36.0	35.2
50	4.6	50	49.0	48.0	47.0	46.0	45.0	44.0
63	5.3	63	61.7	60.5	59.2	58.0	56.7	55.4

Influence of system frequency on response current of short-circuit release

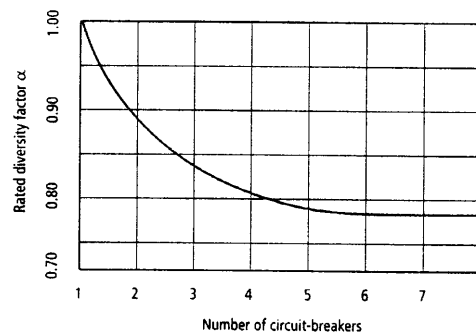
Correction factor k , for calculation of the tripping value of a miniature circuit-breaker when used in a system with a frequency which deviates from 50/60 Hz.
The response values of the overload release are not dependent on the frequency.

Example:

Frequency Hz	Factor k	Type	Frequency	Instantaneous tripping
16 $\frac{2}{3}$ - 60	1	FAZ-B10	50 Hz	30 - 50 A
100 Hz	1.1		400 Hz	45 - 75 A
200 Hz	1.2			
400 Hz	1.5			

Load carrying capacity of FAZ miniature circuit-breakers when mounted side-by-side

Rated diversity factor α where miniature circuit-breakers mounted side-by-side influence one another thermally, at rated load.

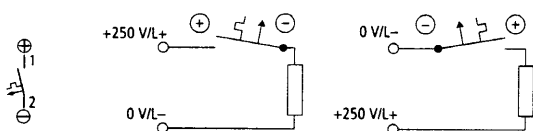


DC application: FAZ-...-C...-DC

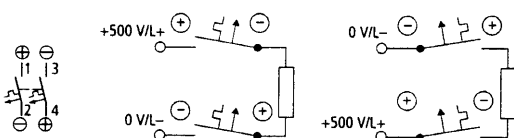
Circuit design notes:

Note polarity !

1-pole



2-pole



Max. options of combining miniature circuit-breakers and residual-current circuit-breakers with accessories

Combination options: FAZ, FAZ-...-FIM, FILS

Left	FAZ				FAZ-2(4)-...FIM...	FILS	right
FAZ/FIP-XHI11	FAZ/FIP-XRHI002	FAZ/XAA	FAZ/XUA				FAZ/FIP-XFSM
●	-	●	-	●	-	-	●
-	●	●	-	●	-	-	●
-	-	-	●	●	-	-	●
●	-	●	-	-	●	-	-
-	●	●	-	-	●	-	-
-	-	-	●	-	●	-	-
-	●	-	-	-	-	●	-

Combination options: FI, FIS, FIP, FIPS ≤ 80 A

Left	FIP(S) ≤ 80 A				right
FAZ/FIP-XHI11	FAZ/XPM		FAZ/FIP-XRHI002	FAZ/FIP-XFSM	
●	-	●	●	●	
-	●	●	●	●	

Combination options: AZ

Left	AZ	right
AZ-XAA		AZ-XHI11
●	●	●

● Can be combined

- Can not be combined

FIP(S) Residual-Current Circuit-Breakers or Earth Leakage Circuit-Breakers (ELCB)

Technical Data

Residual-current circuit-breakers				Rated operational current [A]																				
				A	4-pole FIP(S), FI(S)				FIP		2-pole FIP, FI													
					25	40	63	80	100	125	16	25	40											
General																								
Standards					IEC/EN 61 008, VDE 0664 Part 1 (RCCB), BS 4293																			
Ambient temperature		Min./Max.	°C	-25/+40																				
Mechanical shock resistance (shock duration 20 ms)				g	20																			
Mounting position/direction of incoming supply					As required																			
Degree of protection (terminals)					IP 40 (IP 00), IP 40 when fitted in distribution board																			
Dimensions					→ Page 29																			
Weight				kg	0.32				0.975		0.22													
Terminal capacity																								
		Solid, stranded	Min./Max.	mm ²	1/25				2.5/35		1/25													
Tightening torque				Nm	2.4				4		3													
Contacts																								
Rated uninterrupted current I_u				A	25				40		63		80		100		125		16		25		40	
Rated operational voltage U_e				V AC	230/400									230										
Max. operational voltage				V AC	253/440									253										
Rated frequency				Hz	50 – 60																			
Max. short-circuit protective device				A gG	63		63		63		80		125		125		63		63		63			
Short-circuit rating				kA	10		10		10		10		10		10		10		10		10			
Current heat losses, all contacts																								
At I_n and $I_{\Delta n} = 0.3$ A				W	6		9		20		12		17		27		2		4		10			
At I_n and $I_{\Delta n} = 0.1$ A				W	4		6		13		–		–		–		–		4		7			
At I_n and $I_{\Delta n} = 0.03$ A and 0.5 A				W	2		5		11		12		17		27		–		2		5			
Releases																								
Rated fault current $I_{\Delta n}$				A	0.03/ 0.1/ 0.3/ 0.5									0.03/ 0.1/ 0.3										
Tripping time t_a																								
At $I_{\Delta} = I_{\Delta n}$				ms	200									200										
At $I_{\Delta} = 5 \times I_{\Delta n}$				ms	≤ 40									≤ 40										
Peak withstand current (lightning current 8/20)				FIP	A									250										
				FIPS	A									5000										
Working voltage range of test device ¹⁾				V AC	184 – 440									100 – 250					184 – 253					
Lifespan, mechanical				Operations	≥ 10000									≥ 5000					≥ 10000					
Lifespan, electrical				At I_n , U_n and $\cos \varphi = 0.9$	Operations	≥ 2000									≥ 5000					≥ 2000				
Notes														¹⁾ With FIP-4-25(40)(63)(80) fit test device between 2 phases, otherwise between phase and neutral conductor										

Notes

¹⁾ With FIP-4-25(40)(63)(80) fit test device between 2 phases, otherwise between phase and neutral conductor

REG-SS Impulse Relay

Technical Data

Impulse relays				REG-SS 10		REG-SS 20		
General								
Standards				IEC/EN 60 669-1				
Degree of protection (terminals)				IP 20 (IP 00), IP 30 when fitted in distribution board				
Ambient temperature			Min./Max.	°C	-10/+50			
Mechanical shock resistance (shock duration 20 ms)				g	20			
Mounting position				As required				
Dimensions				→ Page 31				
Weight				kg	0.14		0.16	
Terminal capacity								
Coil connections	Solid	Min./Max.	mm ²	1/6				
	Flexible with ferrule ¹⁾	Min./Max.	mm ²	0.5/4				
Contacts	Solid	Min./Max.	mm ²	1.5/10				
	Flexible with ferrule ¹⁾	Min./Max.	mm ²	1/6				
Tightening torque	Coil A ₁ – A ₂		Nm	1				
	Contacts		Nm	1.5				
Load circuit								
Rated operational voltage U_e (switching contact)				V AC	250			
Rated insulation voltage U_i				V AC	500			
Rated operational current I_e (switching contact)				A	16			
Ratings								
Filament bulbs				W	2200			
Fluorescent lamps (comp. max. 45 µF)				W	400			
Total heat dissipation per contact at $I_e = 16$ A				W	1.3			
Control circuit								
Rated operational voltage U_e				V AC	24	230	24	230
Operating range					$0.85 - 1.1 \times U_e$			
Rated frequency				Hz	50 – 60			
Power consumption		Pull-in		VA	16			
Pulse duration			Min./Max.	s	0.1/3600			
Lifespan, mechanical			Operations		500 000			
Lifespan, electrical			16 A/AC-1	Operations	100 000			

Notes

¹⁾ Ferrule to DIN 46 228

Switchgear for North America

FAZ Miniature Circuit-Breakers

UL 1077/CSA 22.2 No. 235

Supplementary Protector

FAZ miniature circuit-breakers with appropriate upstream protective devices are approved as "Supplementary Protectors" to UL 1077.

FAZ; B characteristic; 6 – 40 A
FAZ; C characteristic; 2 – 40 A

Switching capacity

In conjunction with an upstream protective device
(100 A fuse or max. $4 \times I_n$ MCB)

1-pole

5 kA – 277 V AC

Multi-pole

5 kA – 277/480 V AC

Tripping current

155 % I_n at 30 °C**Accessories**Auxiliary contacts
FAZ-XHI/FAZ-XRHI

General Use

230 V AC

– /2 A

250 V AC

6 A/ –

440 V AC

2 A/ –

110 V DC

2 A/0.5 A

230 V DC

0.5 A/ –

FAZ-XAA voltage release

General Use

Rated operational voltage

FAZ-XAA(110-415 V AC)

V AC

110 – 415

V DC

110 – 230

XAA(12-110 V AC)

V AC

12 – 110

V DC

12 – 60

FAZ-XUA voltage release

Rated operational voltage

V AC

230

Terminal capacity

Supplementary Protector

FAZ-B

FAZ-C

FAZ-XAA

Cables

Cu 75 °C, min. AWG 18, max. AWG 8

Torque

Nm

2.4

Accessories

Cables

Cu 75 °C, min. AWG 18, max. AWG 14

Torque

FAZ-XHI

Nm

0.8

FAZ-XRHI

Nm

0.8

FAZ-XUA

Nm

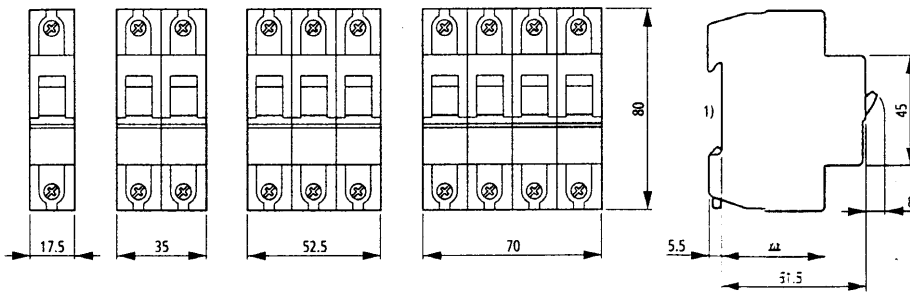
0.8

Miniature Circuit-Breakers

Dimensions

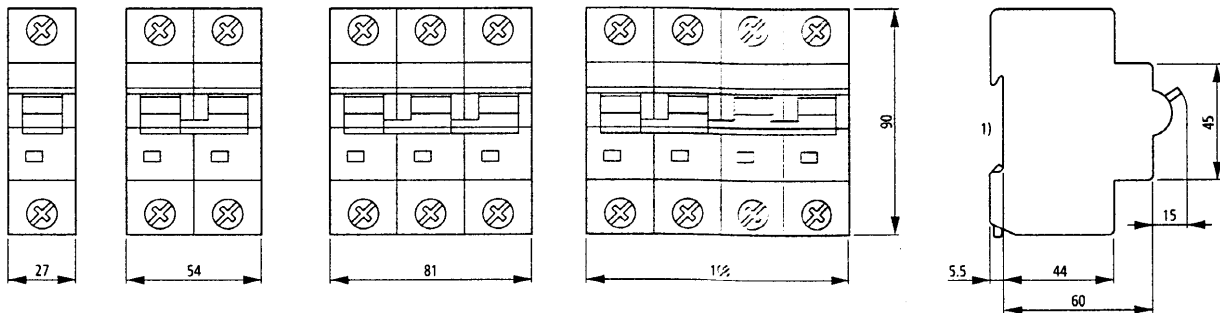
Miniature circuit-breakers

FAZ



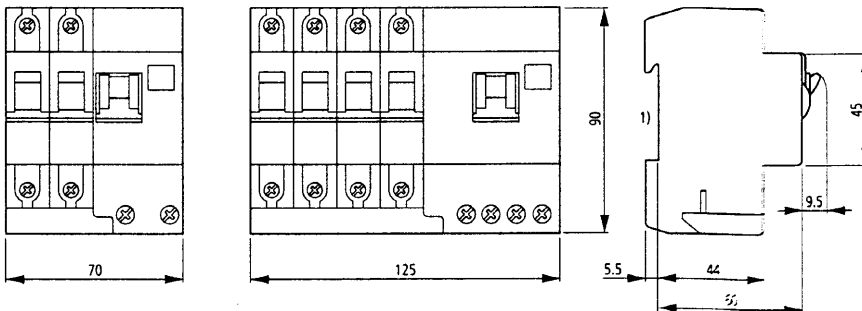
High-capacity miniature circuit-breakers

AZ



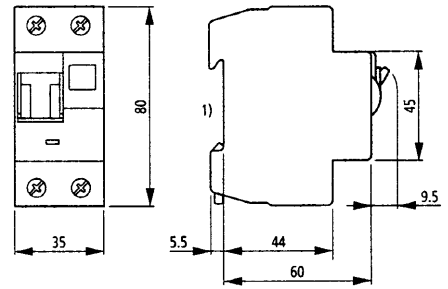
Miniature circuit-breakers with residual-current protection module

FAZ-... - FIM...



Combined RCD/MCB device

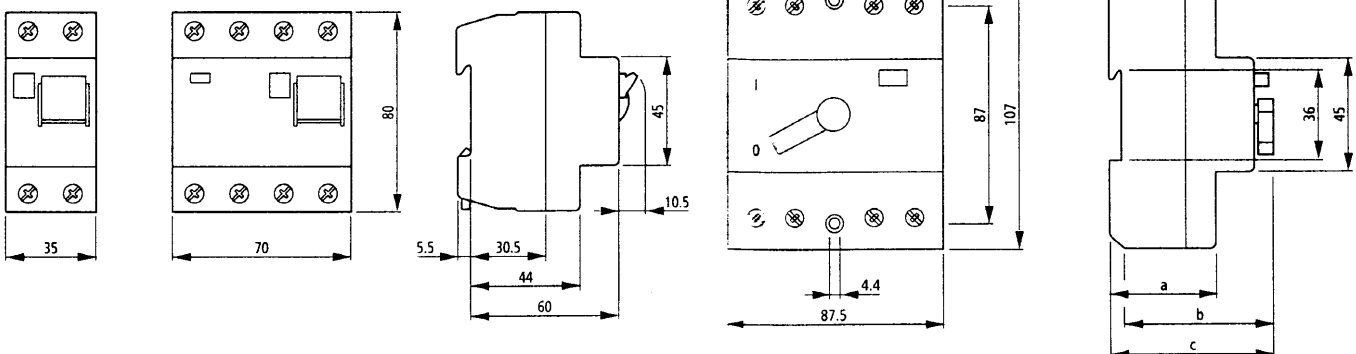
FILS



Residual-current circuit-breakers

FIP, FI

FIP, FIPS ≤ 80 A
FI, FIS ≤ 80 A

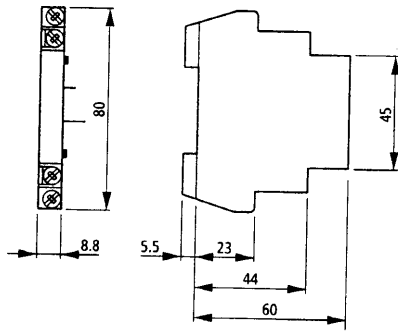
FIP ≥ 100 A

Type	a	b	c
FIP-4-100-0,3 (0,5)	49	68	73
FIP-4-125-... and FIP-4-100-0,03	60	80	85

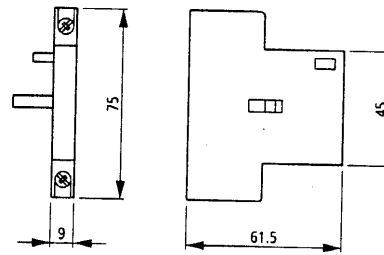
Miniature Circuit-Breakers Dimensions

Standard auxiliary contacts

FAZ/FIP-XHI 11

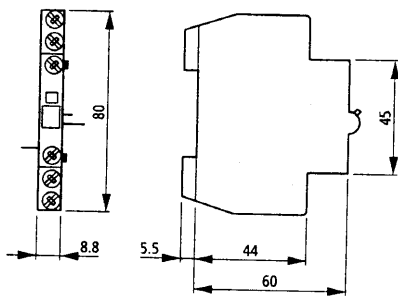


FIP 100/125-XHI 11



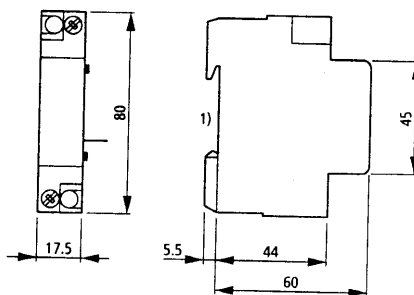
Trip-indicating auxiliary contacts

FAZ/FIP-XRHI002



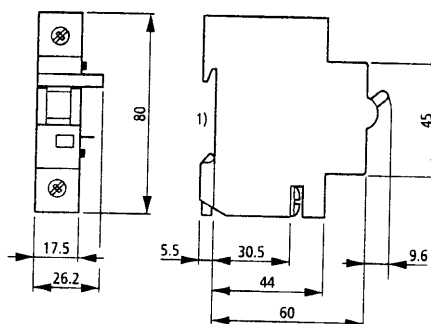
Undervoltage releases

FAZ-XUA



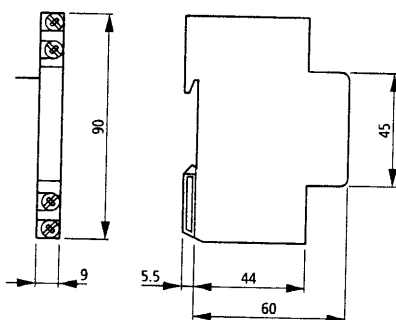
Shunt release

FAZ-XAA



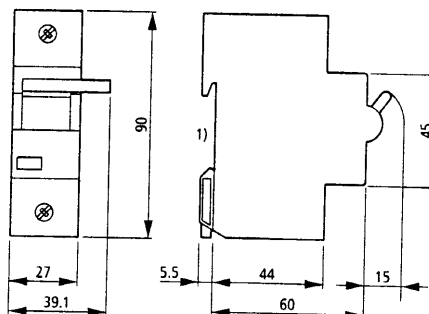
Standard auxiliary contacts

AZ-XHI 11



Shunt release

AZ-XAA



Notes

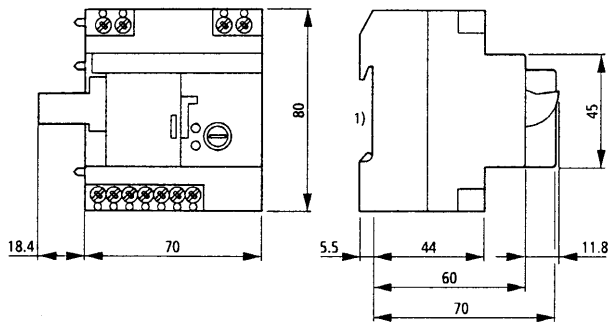
1) Top-hat rail EN 50022

Miniature Circuit-Breakers

Dimensions

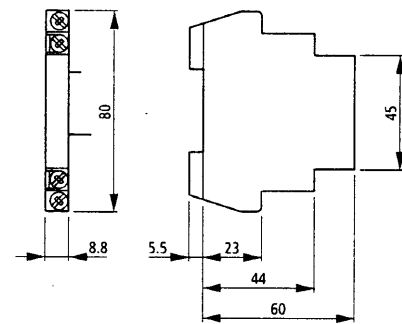
Remote switching module

FAZ/FIP-XFSM



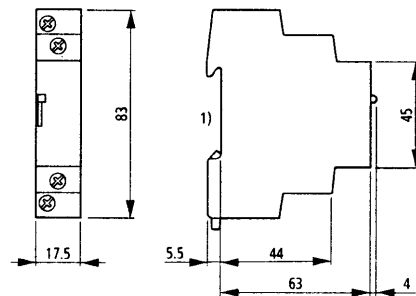
Test module

FIP-XPM



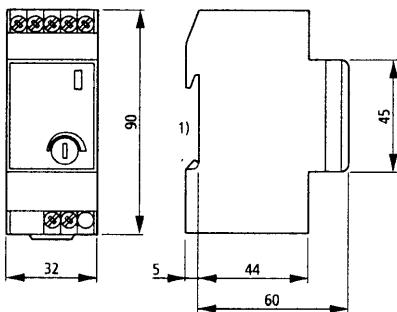
Impulse relay

REG-SS



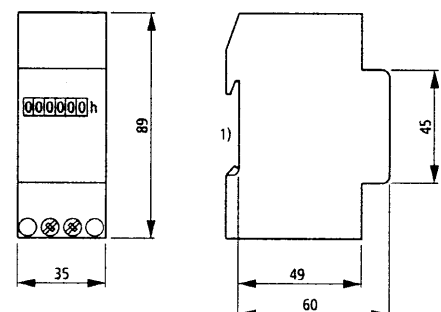
Light intensity switch

REG-DS-ST



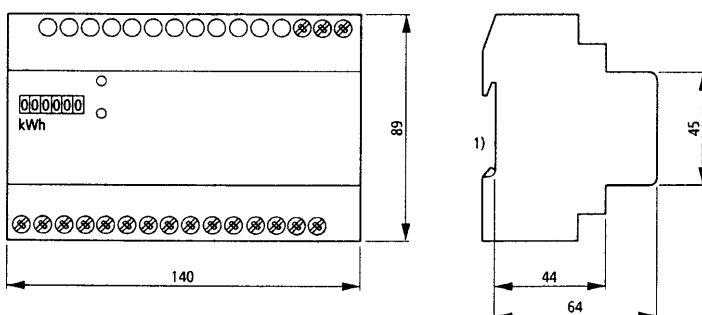
Operational hours counter/pulse counter

REG-BSZ(lZ)



Three-phase power meter

REG-KWH 400



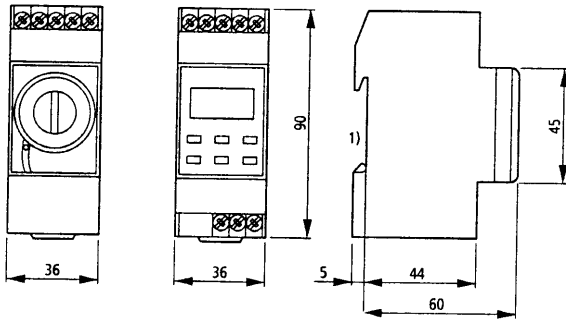
Notes

¹⁾ Top-hat rail EN 50022

Miniature Circuit-Breakers Dimensions

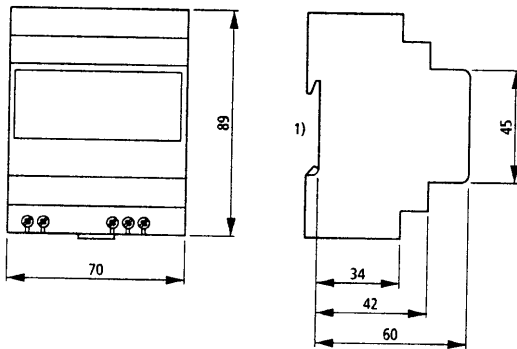
Timers, analog, digital

REG-SUA...(SUD)



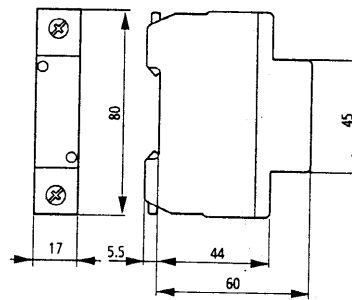
Meters, analog, digital

REG-AMA(VMA, AMD, VMD)



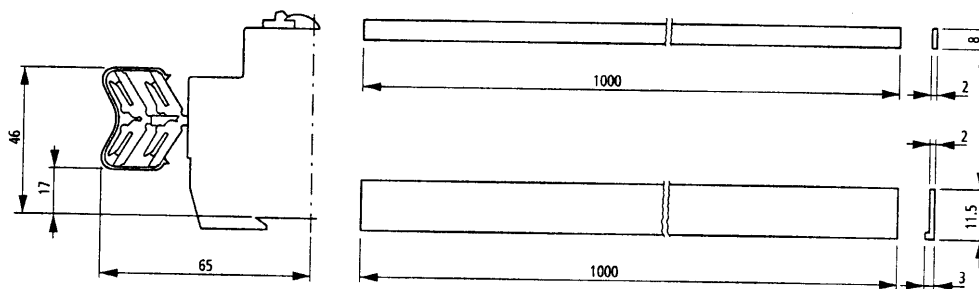
Feeder block for FAZ/FIP-XVS busbar system

FAZ/FIP-XVS-KL



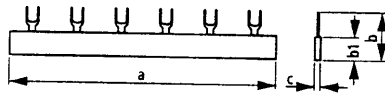
Busbar system

FAZ/FIP-XVS



Commoning busbar for miniature circuit-breakers

FAZ-XIS



Commoning busbar for miniature circuit-breakers without auxiliary contacts

Type	a	b	b1	c
FAZ-XIS1/2	30	29	14	3,5
FAZ-XIS1/6	104	29	14	3,5
FAZ-XIS1/12	207	29	14	3,5
FAZ-XIS2/4	65	29	14	6,3
FAZ-XIS2/6	104	29	14	6,3
FAZ-XIS2/12	207	29	14	6,3
FAZ-XIS3/6	104	29	14	9
FAZ-XIS3/12	206	29	14	9
FAZ-XIS4/8	141	29	14	11,8
FAZ-XIS4/12	207	29	14	11,8

Commoning busbar for miniature circuit-breakers with auxiliary contacts

Type	a	b	b1	c
FAZ-XIS1/2-HI	53	29	14	3,5
FAZ-XIS1/6-HI	155	29	14	3,5
FAZ-XIS1/9-HI	228	29	14	3,5
FAZ-XIS2/4-HI	73	29	14	6,3
FAZ-XIS2/6-HI	120	29	14	6,3
FAZ-XIS2/10-HI	207	29	14	6,3
FAZ-XIS3/6-HI	120	29	14	10,7
FAZ-XIS3/12-HI	236	29	14	10,7
FAZ-XIS31/6-HI	155	29	14	10,7
FAZ-XIS31/8-HI	207	29	14	10,7
FAZ-XIS31/9-HI	236	29	14	10,7

Notes

1) Top-hat rail EN 50022

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2 92 67 64, 4 12 28 14
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TLC-Fax: 8843816

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01009 Guatemala
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