

3VF3 to 3VF8 Circuit-Breakers

3- and 4-pole, up to 2500 A

For other circuit-breakers
(complete program)
see Catalog NS PS

Accessories – Operating mechanisms

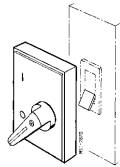
Front rotary drive
for 3VF3



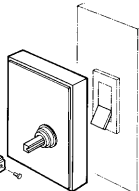
Front rotary drive
for 3VF6



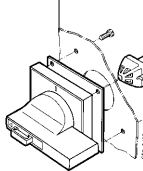
Front rotary drive
with knob



Rotary drive, complete,
scope of supply



Cubicle door



Motor operating
mechanism
for 3VF3



Motor operating
mechanism for
3VF4, 3VF5, 3VF6
(shown with 3VF6)



Motor operating
mechanism
for 3VF8

		Accessories for 3VF3		Accessories for 3VF4	
		Order No.	Price	Order No.	Price
3- or 4-pole					
Front rotary drive for direct fitting to the circuit-breaker. Degree of protection IP 30, black lockable with max. 3 padlocks, without leading aux. switch		3VF9 323-1AA00		3VF9 423-1AA00	
with leading aux. switch acc. to ON* (2 NO), version with connecting leads		3VF9 323-1AB00		3VF9 423-1AB00	
<u>EMERGENCY STOP version</u> red knob, yellow indicator plate without leading aux. switch		3VF9 323-1BA00		3VF9 423-1BA00	
with leading aux. switch acc. to ON* (2 NO), version with connecting leads		3VF9 323-1BB00		3VF9 423-1BB00	
Version with shaft stub, without knob (Rotary drive with door coupling required in addition, see Part 13) without leading aux. switch with leading aux. switch acc. to ON* (2 NO), version with connecting leads		3VF9 323-1JA00 3VF9 323-1JB00		3VF9 423-1JA00 3VF9 423-1JB00	
Rotary drive, complete for fitting in doors and covers Degree of protection IP 65, totally insulated, including black knob with aluminized masking plate indicator plate, detachable door coupling, 300 mm ² extension shaft and front rotary drive for the corresponding circuit-breaker, lockable with a maximum of 3 padlocks, with door interlock without leading aux. switch with leading aux. switch acc. to ON* (2 NO), version with connecting leads		3VF9 323-1EA00 3VF9 323-1EB00		3VF9 423-1EA00 3VF9 423-1EB00	
<u>EMERGENCY STOP version</u> red knob, yellow indicator plate without leading aux. switch with leading aux. switch acc. to ON* (2 NO), version with connecting leads		3VF9 323-1FA00 3VF9 323-1FB00		3VF9 423-1FA00 3VF9 423-1FB00	
Additional locking device for rotary drive, complete ¹⁾		3VF9 323-1VA00		3VF9 423-1VA00	
Motorized operating mechanism²⁾ Degree of protection IP 00					
<u>without locking device</u>					
AC 50/60 Hz	DC				
–	24 V	3VF9 323-1MA20		3VF9 423-1MA20	
42 V	48 V	3VF9 323-1MB10		3VF9 423-1MB10	
–	60 V	3VF9 323-1MC20		3VF9 423-1MC20	
110/127 V	110/127 V	3VF9 323-1MD10		3VF9 423-1MD10	
220/240 V	220 V	3VF9 323-1ME10		3VF9 423-1ME10	
<u>with locking device for 3 padlocks</u>					
AC 50/60 Hz	DC				
–	24 V	3VF9 323-1NA20		3VF9 423-1NA20	
–	48 V	3VF9 323-1NB10		3VF9 423-1NB10	
42 V	48 V	3VF9 323-1NC20		3VF9 423-1NC20	
–	60 V				
–	110/125 V				
110/127 V	110/127 V	3VF9 323-1ND10		3VF9 423-1ND10	
220/240 V	220 V	3VF9 323-1NE10		3VF9 423-1NE10	
Motorized operating mechanism suitable for synchronizing Degree of protection IP 00 with locking device for 3 padlocks					
AC 50/60 Hz	DC				
–	24 V	–		3VF9 423-1QA20	
–	48 V	–		3VF9 423-1QB10	
42 V	48 V	–		3VF9 423-1QC20	
–	60 V	–		3VF9 423-1QD10	
110/127 V	110/127 V	–		3VF9 423-1QE10	
220/240 V	220 V	–		3VF9 623-1WB00	
Handle for motor operating mechanism suitable for synchronizing ²⁾					
Solenoid drive 110/120 V AC 50/60 Hz		3VF9 323-1SD30		–	
220/240 V AC 50/60 Hz		3VF9 323-1SE30		–	
110/120 V DC		3VF9 323-1SD20		–	
220/240 V DC		3VF9 323-1SE20		–	

*) Leading auxiliary switch for OFF or ON/OFF, see Catalog NS PS.

HS = auxiliary switch

1) Only required if the circuit-breaker is also to be lockable with the door open, i.e. with rotary drive disconnected.
Lockable with max. 3 padlocks, 4,5 to 8 mm hasp diameter.

2) For longer shafts, see Part13.

3VF3 to 3VF8 Circuit-Breakers

3- and 4-pole, up to 2500 A

For other circuit-breakers
(complete program)
see Catalog NS PS

Accessories – Operating mechanisms

Accessories for 3VF5		Accessories for 3VF6		Accessories for 3VF7		Accessories for 3VF8	
Order No.	Price	Order No.	Price	Order No.	Price	Order No.	Price
3VF9 523-1AA00		3VF9 623-1AA00		3VF9 723-1AA00		3VF9 823-1AA01	
3VF9 523-1AB00		3VF9 623-1AB00		3VF9 723-1AB00		3VF9 823-1AB01	
3VF9 523-1BA00		3VF9 623-1BA00		3VF9 723-1BA00		3VF9 823-1BA01	
3VF9 523-1BB00		3VF9 623-1BB00		3VF9 723-1BB00		3VF9 823-1BB01	
3VF9 523-1JA00 3VF9 523-1JB00		3VF9 623-1JA00 3VF9 623-1JB00		3VF9 723-1JA00 3VF9 723-1JB00		3VF9 823-1JA01 3VF9 823-1JB01	
3VF9 523-1EA00 3VF9 523-1EB00		3VF9 623-1EA00 3VF9 623-1EB00		3VF9 723-1EA00 3VF9 723-1EB00		3VF9 823-1EA01 3VF9 823-1EB01	
3VF9 523-1FA00 3VF9 523-1FB00		3VF9 623-1FA00 3VF9 623-1FB00		3VF9 723-1FA00 3VF9 723-1FB00		3VF9 823-1FA01 3VF9 823-1FB01	
3VF9 523-1VA00		3VF9 623-1VA00		integral with front rotary drive		integral with front rotary drive	
3VF9 523-1MA20 3VF9 523-1MB10 3VF9 523-1MC20		⁶⁾ 3VF9 623-1MA20 ⁶⁾ 3VF9 623-1MB10 ⁶⁾ 3VF9 623-1MC20		- - -		- - -	
3VF9 523-1MD10 3VF9 523-1ME10		⁶⁾ 3VF9 623-1MD10 ⁶⁾ 3VF9 623-1ME10		- -		- -	
3VF9 523-1NA20 - 3VF9 523-1NB10 3VF9 523-1NC20 - 3VF9 523-1ND10 3VF9 523-1NE10		⁶⁾ 3VF9 623-1NA20 ⁶⁾ 3VF9 623-1NB10 ⁶⁾ 3VF9 623-1NC20 ⁶⁾ 3VF9 623-1ND10 ⁶⁾ 3VF9 623-1NE10		⁵⁾ 3VF9 723-1NB20 - ⁵⁾ 3VF9 723-1ND20 ⁴⁾⁵⁾ 3VF9 723-1ND30 ⁴⁾⁵⁾ 3VF9 723-1NE30		- 3VF9 833-1NB20 - ⁴⁾ 3VF9 833-1ND30 ⁴⁾ 3VF9 833-1NE30	
3VF9 523-1QA20 - 3VF9 523-1QB10 3VF9 523-1QC20 3VF9 523-1QD10 3VF9 523-1QE10 3VF9 623-1WB00		3VF9 623-1QA20 - 3VF9 623-1QB10 3VF9 623-1QC20 3VF9 623-1QD10 3VF9 623-1QE10 3VF9 623-1WB00		- - - - - -		- - - - - -	
- - -		- - -		- - -		- - -	

3) A transformer is required for 380/400 V or 500 V control supply:
e.g. 400/230 V (380/220 V), Order No. 4AM34 41-5AT10-0C } Catalog Part 14.
500/230 V Order No. 4AM34 41-5FT10-0C }
The motor operating mechanism must be ordered for 50/60 Hz 220 V AC.

4) Not for DC voltages.

5) For local manual operation.

6) Do not use motor operating mechanisms in combination with withdrawable frames in the case of 3VF6/3VF7

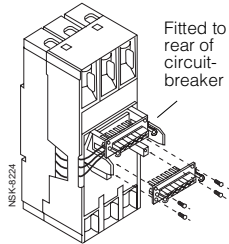
3VF3 to 3VF8 Circuit-Breakers

3- and 4-pole, up to 2500 A

For other circuit-breakers
(complete program)
see Catalog NS PS

Accessories – Connections

3VF9 524–1VA50
Auxiliary connection plug
for 3VF4/3VF5



Fitted to rear of circuit-breaker

3VF9 324–1LD10
rear terminal for 3VF3



Auxiliary connection plug
for plug-in circuit-breaker/
withdrawable circuit-breaker
(fitted to side of plug-in CB ³⁾)
fitted to rear of CB
additional side plug ³⁾)
additional rear plug

Pull-out device ¹⁾
for plug-in circuit breaker/
plug-in socket

Position indicator switch
for withdrawable frame

Accessories for 3VF3

Order No. Price

Accessories for 3VF4

Order No. Price

3- or 4-pole

3VF9 624–1VA40

–

3VF9 624–1VJ40

–

3VF9 624–1VF00

–

3VF9 624–1VA40

3VF9 524–1VA50

3VF9 624–1VJ40

3VF9 624–1VJ50

3VF9 624–1VF00

–

3-pole only

Front busbar connection pieces
1 set = 3 items

Rear connections
1 set = 3 items

Terminal with interphase barrier for flexible flat copper bars
(20 mm wide, up to 10 mm thick)
1 set = 3 items

Multiple feed terminals
1 set = 3 items

Plug-in socket
complete with baseplate and
2 terminal covers
for front connection
for CB with DI module

Plug-in socket
with baseplate
for rear connection
for CB with DI module

Withdrawable frame ²⁾
with baseplate and crank handle
for front connection
for rear connection

Terminal covers IP 30
with integral interphase barriers
for main connections
1 set = 2 items

Interphase barriers
for main connections
1 set = 2 items

3VF9 324–1JA10

3VF9 324–1LD10

with standard terminals,
for up to 160 A,
included in scope of
supply of circuit-breaker

–

–

3VF9 324–1FA10
3VF9 324–1FE10

3VF9 324–1FB10
3VF9 324–1FF10

–

–

3VF9 324–1NB10
for cable connection

3VF9 324–1RA10

3VF9 424–1JA10

3VF9 424–1LD10

Standard terminals,
included in scope of
supply of circuit-breaker

–

–

3VF9 424–1FA10
3VF9 424–1FE10

3VF9 424–1FB10
3VF9 424–1FF10

–

–

3VF9 424–1NB10
for cable connection

3VF9 524–1RA10

3VF9 724–1LD10
Rear connection for 3VF7



3VF9 524–1FA10
plug-in socket with
base plate for
front connection
for 3VF5



3VF9 624–1AD10
Multiple feed
terminal for 3VF6



3VF9 724–1JA10
Front busbar
connection
pieces for 3VF7



3VF9 524–1NB10
Terminal cover
for main connections
for 3VF5



3VF9 524–1RA10
Interphase barrier
for 3VF4/3VF5



3VF9 624–1GB10
Withdrawable frame with 3VF6
plug-in circuit-breaker



4-pole only

Front busbar connection pieces
1 set = 4 items

Rear connection
1 set = 4 items

Terminal with interphase barrier for flexible flat copper bars
up to 1 × 10 × 20 mm
1 set = 4 items

Multiple feed terminal
1 set = 4 items

Plug-in socket
complete with baseplate and
2 terminal covers
for front connection
for CB with DI module

Plug-in socket
with baseplate
for rear connection
for CB with DI module

Withdrawable frame ²⁾
with baseplate and crank handle
for front connection
for rear connection

Terminal covers IP 30
with integral interphase barriers
for main connections
1 set = 2 items

3VF9 324–1JA20

3VF9 324–1LD20

with standard terminals,
for up to 160 A,
included in scope of
supply of circuit-breaker

–

–

3VF9 324–1FA20
3VF9 324–1FE20

3VF9 324–1FB20
3VF9 324–1FF20

–

–

3VF9 324–1NB20
for cable connection

3VF9 324–1RA20

3VF9 424–1JA20

3VF9 424–1LD20

Standard terminals,
included in scope of
supply of circuit-breaker

–

–

3VF9 424–1FA20
3VF9 424–1FE20

3VF9 424–1FB20
3VF9 424–1FF20

–

–

3VF9 424–1NB20
for cable connection

3VF9 524–1RA20

For 8US1 busbar adapter system, see Part 13.

- 1) For easy removal of 3VF circuit-breakers when mounted in a row.
- 2) Use plug-in circuit-breaker with connection cables (see page 11/14).
- 3) Not in conjunction with withdrawable frames.

3VF3 to 3VF8 Circuit-Breakers

3- and 4-pole, up to 2500 A

For other circuit-breakers
(complete program)
see Catalog NS PS

Accessories – Connections

Accessories for 3VF5		Accessories for 3VF6		Accessories for 3VF7		Accessories for 3VF8	
Order No.	Price	Order No.	Price	Order No.	Price	Order No.	Price
3VF9 624-1VA40 3VF9 524-1VA50 3VF9 624-1VJ40 3VF9 624-1VJ50		3VF9 624-1VA40 3VF9 624-1VA50 3VF9 624-1VJ40 3VF9 624-1VJ50		- 3VF9 724-1VA50 - 3VF9 624-1VJ50		- - - -	
3VF9 624-1VF00		3VF9 624-1VF00		-		-	
-		3VF9 624-1VL60 (1 changeover)		3VF9 724-1VL60 (2 changeovers)		-	
3VF9 524-1JA10		included in scope of supply of the circuit-breaker		3VF9 724-1JA10		3VF9 824-1JA10 (up to 2000 A)	
3VF9 524-1LD10		3VF9 624-1LD10		3VF9 724-1LD10		3VF9 824-1LD10	
3VF9 524-1JB10		on request		on request		-	
-		3VF9 624-1AD10 (up to 630 A)		3VF9 724-1AD10		-	
3VF9 524-1FA10 3VF9 524-1FE10		3VF9 624-1FA10 -		- -		- -	
3VF9 524-1FB10 3VF9 524-1FF10		3VF9 624-1FB10 -		- -		- -	
-		⁴⁾ 3VF9 624-1GA10 ⁴⁾ 3VF9 624-1GB10		⁴⁾ 3VF9 724-1GA10 ⁴⁾ 3VF9 724-1GB10		- -	
3VF9 524-1NB10 for cable connection		3VF9 624-1NB10 for cable or busbar connection		-		-	
3VF9 524-1RA10		3VF9 624-1RA10		3VF9 724-1RA10		-	
3VF9 524-1JA20		included in scope of supply of the circuit-breaker		3VF9 724-1JA20		3VF9 824-1JA20 (up to 2000 A)	
3VF9 524-1LD20		3VF9 624-1LD20		3VF9 724-1LD20		3VF9 824-1LD20	
3VF9 524-1JB20		on request		on request		-	
-		3VF9 624-1AD20 (up to 630 A)		3VF9 724-1AD20		-	
3VF9 524-1FA20 3VF9 524-1FE20		3VF9 624-1FA20 -		- -		- -	
3VF9 524-1FB20 3VF9 524-1FF20		3VF9 624-1FB20 -		- -		- -	
-		⁴⁾ 3VF9 624-1GA20 ⁴⁾ 3VF9 624-1GB20		⁴⁾ 3VF9 724-1GA20 ⁴⁾ 3VF9 724-1GB20		- -	
3VF9 524-1NB20 for cable connection		3VF9 624-1NB20 for cable or busbar connection		-		-	

4) The withdrawable frame cannot be used in combination with the motor operating mechanism for 3VF6 and 3VF7.

3VF3 to 3VF8 Circuit-Breakers

3- and 4-pole, up to 2500 A

Accessories – locking devices, covers

For other circuit-breakers (complete program) see Catalog NS PS

3VF9 520-1AA00
Cover frame
for door cutout
for 3VF5



3VF9 523-1VC00
Locking device
for toggle lever
for 3VF4/3VF5



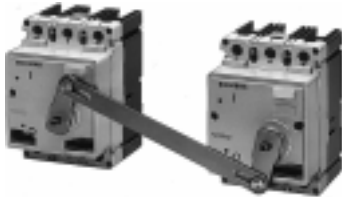
3VF9 323-1VG00
Module for cross-interlocking
of toggle levers for 3VF3



3VF9 623-1VB00
Toggle lever
extension
for 3VF6



3VF9 523-1VL00
Cross-interlocking of two circuit-breakers
with rotary drive, for 3VF3 to 3VF7,
complete for fitting in doors and covers



Accessories for 3VF3

Order No. Price

3 or 4-pole

Locking device for toggle lever	3VF9 323-1VC00
Toggle lever extension for retro-fitting by pushing onto the toggle lever of the circuit-breaker	–
Cross-interlocking of two circuit-breakers order 2 × rotary door coupling drives with this device ¹⁾	3VF9 523-1VL00
Cover frame for door cutout IP 30 for circuit-breaker without DI module with DI module	3VF9 320-1AA00 3VF9 320-1AB00
Sheet steel enclosure IP 54 without drive (see Part 13 for insulated enclosure)	3VF9 324-1DA00
Accessories: Front rotary drive with shaft stub, without knob Also required: black knob, lockable red knob, with yellow plate, lockable, for EMERGENCY STOP circuit breaker	see page 11/20. 3VF9 323-1VN10 3VF9 323-1VN20

3-pole only

**Module for cross-interlocking of
toggle levers ²⁾**
(this is not a changeover device)

3VF9 323-1VG00

Accessories for 3VF4

Order No. Price

3VF9 523-1VC00

3VF9 523-1VB00

3VF9 523-1VL00

3VF9 420-1AA00
3VF9 420-1AB00

Insulated enclosure
see Part 13.

3VF9 423-1VG00

3VF circuit breakers with DI (differential current) module

Application

- Safety of persons in TT, IT and TN systems (set to $I_{\Delta n} = 30 \text{ mA}$, t_d instantaneous³⁾)
- Protection of plant and equipment against overload or damage by earth faults (earth fault protection).

The DI module detects earth fault currents in 3- and 4-wire systems (AC or pulsating DC) and causes the circuit-breaker to switch off the faulty circuit.

Equipping a 3VF circuit-breaker with a DI-module has no effect on the characteristics of the circuit-breaker:

- Rated voltage (50/60 Hz), rated current, switching capacity
- electrical and mechanical life
- connections
- drive mechanisms

- auxiliary switches and releases
see page 11/25.

Specifications

Circuit-breakers with DI modules comply with IEC 60 947-2 and DIN VDE 0660 Part 101, the differential current protection complies with IEC 60 947-2, Appendix B.

Electromagnetic compatibility (EMC) complies with IEC 60 801-2 to 5.

Method of operation

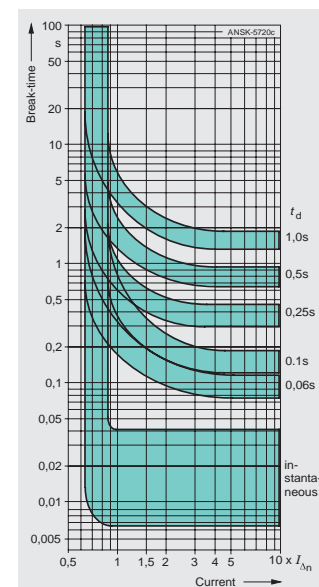
In a fault-free system, the sum of the conductor currents in the current transformer of the DI module is equal to zero. If a fault current flows to ground due to an insulation fault in the part of the system being protected, a differential current results. This produces a voltage

3VF5 circuit-breaker with DI module



in the secondary winding of the current transformer. The induced voltage is evaluated electronically and a trip signal is given to the DI release in the circuit-breaker if the trip conditions are fulfilled.

Tripping characteristic of a DI module



Footnotes to pages 11/24 and 11/25:

- 1) See page 11/20.
- 2) Only possible for versions with connection cables.
- 3) IEC specifications (not DIN VDE 0100 Part 410).
- 4) Not for electronic release (11th position of Order No. "5" or "6").

3VF3 to 3VF8 Circuit-Breakers

3- and 4-pole, up to 2500 A

For other circuit-breakers (complete program) see Catalog NS PS

Accessories – locking devices, covers

Accessories for 3VF5		Accessories for 3VF6		Accessories for 3VF7		Accessories for 3VF8	
Order No.	Price	Order No.	Price	Order No.	Price	Order No.	Price
3VF9 523-1VC00		3VF9 623-1VC00		3VF9 723-1VC00		-	
3VF9 523-1VB00		3VF9 623-1VB00		included in scope of supply of the circuit-breaker		included in scope of supply of the circuit-breaker	
3VF9 523-1VL00		3VF9 623-1VL00		3VF9 623-1VL00		-	
3VF9 520-1AA00 3VF9 520-1AB00		3VF9 620-1AA00 -		3VF9 720-1AA00 -		3VF9 820-1AA00 -	
For insulated enclosure see Part 13		For insulated enclosure see Part 13		For insulated enclosure see Part 13		-	

3VF9 523-1VG00

3VF9 623-1VG00

-

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Settings

- The differential tripping current $I_{\Delta n}$ is adjustable in steps from 30 mA to 30 A.
- The trip delay can be set from instantaneous to 1 sec in steps. Exception: with setting $I_{\Delta n} = 30$ mA, tripping is instantaneous.

- The setting knob can be sealed to prevent unauthorized access.
- The control panel incorporated a test button to electronically test the function of the current transformers, the evaluation electronics and the DI release in the circuit-breaker.

- The DI module detects 1, 2, 3 or 4-pole loads with its integral summation current transformer.

switch for remote monitoring indicates whether the circuit-breaker has been tripped by the DI release. The DI release can also be used as a shunt release for remote tripping of the circuit-breaker.

Indication/ shunt release

A visual indicator in the circuit-breaker cover and an auxiliary

The circuit-breaker and DI module combination is fed from the top.

3VF circuit-breakers (3- and 4-pole) with DI module are available with auxiliary and alarm switches.

(2nd order No. supplement, see pages 11/14 and 11/15).

Circuit breakers with DI modules cannot be supplied with

undervoltage releases or additional shunt release (1st Order No. supplement: "0A", see pages 11/14 and 11/15).

Selection and ordering data

3VF circuit breakers with DI module

The DI module is fitted to the circuit-breaker at the factory. When ordering, add Order No. suffix "-Z" to the complete Order No. and add the relevant Order Code.

For 3- and 4-pole circuit-breakers	Rated current I_n of circuit-breaker A	Adjustable-differential current $I_{\Delta n}$ A	Adjustable delay time t_d s	Rated operating voltage U_e V	Order No. with "-Z" and additional Order Code □□□	Extra price for circuit-breaker Order Code A01		Extra price for circuit-breaker Order Code A02		Extra weight of circuit-breaker	
						3-pole	4-pole	3-pole	4-pole	3-pole	4-pole
3VF31	For line or motor protection	100	0.03 0.1	instantaneous	110-415	A01				0.48	0.5
3VF32		160	0.3 0.5	0.06 0.1	110-690	A02				0.48	0.5
3VF4		250	1.0 3.0	0.25 0.5						0.94	1.25
3VF5	For line protection ⁴⁾	400 ⁴⁾	10 30	1.0						1.18	1.21