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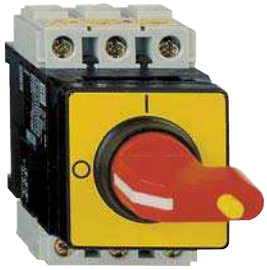
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TeSys protection components
Mini-VARIO and VARIO switch disconnectors

Applications	Mini-Vario and Vario rotary switch disconnectors from 12 to 175 A are suitable for on-load making and breaking of resistive or mixed resistive and inductive circuits where frequent operation is required. They can also be used for direct switching of motors in Vario switch disconnectors are suitable for isolator applications with fully visible breaking (since the handle cannot indicate the "open" position unless all the contacts are actually open and separated by the appropriate isolating distance) and it is possible to padlock the handles in the open position.





Switch type	Mini-VARIO for standard applications		VARIO for high performance applications		
Thermal current	12 A	20 A	12 A	20 A	25 A
Operational current AC-23 A at 400 Volts	8.1 A	11 A	8.1 A	11 A	14.5 A
Number of poles	3…5		3…6		
Number of auxiliary contacts	1 or 2		1…4		
From the front	Fixing: 1 x Ø 22.5 hole or 4 x Ø 5.5 screws				
From the back	Clip-on mounting on 7 rail		Clip-on mounting on 7		
Reversible terminal blocks	Yes				
Door mounting, direct operator	Yes				
Mounting at back of enclosure, indirect operator with door interlock	Yes				
Enclosure reference	VpDN 12	VpDN 20	VpD 02 VpF 02	VpD 01 VpF 01	VpD 0 VpF 0
Product reference	VCFN 12GE	VCFN 20GE	VpF 02GE	VpF 01GE	VpF 0GE
Pages	2/4 and 4/8		4/12 and 4/13		

Mini-Vario and Vario rotary switch disconnectors from 12 to 175 A are suitable for on-load making and breaking of resistive or mixed resistive and inductive circuits where frequent operation is required.

Vario switch disconnectors are suitable for isolator applications with fully visible breaking (since the handle cannot indicate the "open" position unless all the contacts are actually open and separated by the appropriate isolating distance) and it is possible to padlock the handles in the open position.





VARIO for high performance applications					
32 A	40 A	63 A	80 A	125 A	175 A
21.8 A	29 A	41.5 A	57 A	68.5 A	83 A
3…6				3 + N + PE	
1…4					
Fixing: 1 x Ø 22.5 hole or 4 x Ø 5.5 screws		Fixing 4 x Ø 5.5 screws			
Clip-on mounting on 7					
Yes					
Yes					
Yes					
VpD 1 VpF 1	VpD 2 VpF 2	VpF 3	VpF 4	VpF 5	VpF 6
VpF 1GE	VpF 2GE	VpF 3GE	VpF 4GE	VpF 5GE	VpF 6GE
2/4, 4/8 and 4/12					

Characteristics

Environment

Switch type (bare type)			VN 12 VZN 12	V02 VZ 02	VN 20 VZN 20	V01 VZ 01	V0 VZ 0	VVD 0 VVE 0	V1 VZ 1	VVD 1 VVE 1
Conforming to standards			IEC 60947-3							
			UL, CSA, GL							
Protective treatment			"TC"							
Degree of protection with protection shroud			IP 20 conforming to IEC 60529							
Ambient air temperature		° C	- 20…+ 50							
Flame resistance		° C	960 conforming to IEC 60695-2-1							
Shock resistance 1/2 sine wave = 11ms conforming to IEC60068-2-27		gn	15	30	15	30				
Vibration resistance 10…150 Hz conforming to IEC 60068-2-6		gn	5	1						

Electrical characteristics, a.c. operation

Switch type (bare type)			VN 12 VZN 12	V02 VZ 02	VN 20 VZN 20	V01 VZ 01	V0 VZ 0	VVD 0 VVE 0	V1 VZ 1	VVD 1 VVE 1
Rated operational voltage (Ue)		V	690							
Rated impulse withstand voltage (Uimp)		kV	6	8	6	8				
Conventional thermal currents in free air (Ith) and rated uninterrupted (Iu)		A	12		20		25		32	
Conventional thermal current in enclosure (Ithe)		A	10		16		20		25	
Rated operational power and current	AC-21A/22A 230…690 V	A	12		20		25		32	
	AC-23A 230 V	A/kW	10.6/3		14/4		19.7/5.5			
	240 V	A/kW	10.6/3		14/4		19.9/5.5		18.9/5.5	
	400 V	A/kW	8.1/4		11/5.5		14.5/7.5		21.8/11	
	415 V	A/kW	8.1/4		11/5.5		14/7.5		21/11	
	500 V	A/kW	8.9/5.5		11.9/7.5		16.7/11			
	690 V	A/kW	8.6/7.5		12.3/11		17.5/15			
Rated operational power	AC -3 230/240 V	kW	1.5		3		4			
	400/415 V	kW	3		4		5.5		7.5	
	500 V	kW	4		5.5		7.5			
	690 V	kW	4	5.5		7.5	11			
Intermittent duty class			30							
Characteristics in normal operating conditions	Rated making capacity AC-21A/22A/23A (I rms)	A/ 400 V	120		200		250		320	
	Rated breaking capacity AC-21A/22A/23A (I rms)	A/ 400 V	120		200				250	
Short-circuit characteristics	Permissible rms short time rating (Icw)	A/ 400 V/1 s	140	300	140	300			384	
	Rated making capacity under short-circuit conditions (Icm) I peak	kA/ 400 V	0.5	1	0.5	1				
	Rated conditional short-circuit current (I rms) with aM/gG fuses	kA/ 400 V	6	10	6	10				
		A	12		20		25		35	

V2 VZ 2	VVD 2 VVE 2	V3 VZ 3	VVD 3 VVE 3	V4 VZ 4	VVD 4 VVE 4	V5	V6	VZ7 VZ2 0	VZN 05 VZN 06
IEC 60947-3								IEC 60947-5	
UL, CSA, GL									
“TC”									
IP 20 conforming to IEC 60529									
- 20…+ 50									
960 conforming to IEC 60695-2-1									
30								–	
1								–	

V2 VZ 2	VVD 2 VVE 2	V3 VZ 3	VVD 3 VVE 3	V4 VZ 4	VVD 4 VVE 4	V5	V6	VZ7 VZ2 0	VZN 05 VZN 06
690									
8									6
40		63		80		125	175	12	6
32		50		63		100	140	10	4
40		63		80		125	160	le/AC-15	
25.8/7.5		50.3/15		61.2/18.5		71.9/22	96.6/30	6 A	
24.8/7.5		48.2/15		58.5/18.5		68/22	92.7/30	6 A	
29/15		41.5/22		57/30		68.5/37	83/45	4 A	
28/15		40/22		55/30		66/37	80/45	4 A	
28.5/18.5		44/30		54/37		64.5/45	79/55	2 A	
17.5/15		25/22		33/30		42/37	49/45	1 A	
5.5		11		15		22	30	–	
11		18.5		22		30	37	–	
15		22		30		37	45	–	
11		18.5				30	37	–	
30								–	
400		630		800		1250	1750	–	
320		500		640		1000	1400	–	
480		756		960		1500	2100	–	
1		2.1				2.8		–	
10								1	
50		63		80		125	200	16	1.6

Characteristics

Electrical characteristics, d.c. operation

Switch type (bare type)				VN 12 VZN 12	V02 VZ 02	VN 20 VZN 20	V01 VZ 01	V0 VZ 0	VVD 0 VVE 0	V1 VZ 1	VVD 1 VVE 1
Rated operational current DC-1 (L/R = 1ms)	24 V	1 contact	A	12		20		25		32	
		2 contacts	A	12		20		25		32	
		3 contacts	A	12		20		25		32	
	48 V	1 contact	A	12		20		25		32	
		2 contacts	A	12		20		25		32	
		3 contacts	A	12		20		25		32	
	60 V	1 contact	A	12		20		25		32	
		2 contacts	A	12		20		25		32	
		3 contacts	A	12		20		25		32	
	110 V	1 contact	A	1.5		2		9		10	
		2 contacts	A	8		10		12		16	
		3 contacts	A	12		20		25		32	
	220 V	1 contact	A	1.5		2		2.5		3	
		2 contacts	A	7		8		10		12	
		3 contacts	A	10		14		16		20	
	250 V	1 contact	A	0.6		0.7		0.8		1	
		2 contacts	A	3		4		6		8	
		3 contacts	A	8		10		12		16	
Rated operational current DC-2 to DC-5 (L/R = 1ms)	24 V	1 contact	A	12		20		25		32	
		2 contacts	A	12		20		25		32	
		3 contacts	A	12		20		25		32	
	48 V	1 contact	A	12		20		25		32	
		2 contacts	A	12		20		25		32	
		3 contacts	A	12		20		25		32	
	60 V	1 contact	A	10		14		16		20	
		2 contacts	A	12		20		25		32	
		3 contacts	A	12		20		25		32	
	110 V	1 contact	A	1.5		2		2.5		3	
		2 contacts	A	3		4		5		6	
		3 contacts	A	12		20		25		32	
	220 V	1 contact	A	0.4		0.5		0.5		0.8	
		2 contacts	A	1.4		1.5		1.5		2	
		3 contacts	A	1		2		3		4	
	250 V	1 contact	A	0.3		0.4		0.5		0.8	
		2 contacts	A	0.4		0.6		0.8		1	
		3 contacts	A	1.2		2.4		1.6		2	

Other characteristics

Switch type (bare type)			VN 12 VZN 12	V02 VZ 02	VN 20 VZN 20	V01 VZ 01	V0 VZ 0	VVD 0 VVE 0	V1 VZ 1	VVD 1 VVE 1
Mechanical durability (millions of operating cycles)			0.05	0.1	0.05	0.1				
Electrical durability in cat. AC-21 (millions of operating cycles)			0.05	0.1	0.05	0.1				
Electrical durability in cat. DC-1 to 5 (operating cycles)			30 000							
Suitable for isolation			Yes							
Cabling	Flexible cable + cable end	mm^2	4	6	4	6				
	Solid cable	mm^2	4	10	4	10				
Tightening torque		N.m	0.7	2.1	0.7	2.1				

V2 VZ 2	VVD 2 VVE 2	V3 VZ 3	VVD 3 VVE 3	V4 VZ 4	VVD 4 VVE 4	V5	V6	VZ7 VZ2 0	VZN 05 VZN 06
40		63		80		125	175	8 (Ie/DC-11)	
40		63		80		125	175	–	
40		63		80		125	175	–	
40		63		80		125	175	8 (Ie/DC-11)	
40		63		80		125	175	–	
40		63		80		125	175	–	
35		40		50		60	70	4 (Ie/DC-11)	
40		63		80		125	175	–	
40		63		80		125	175	–	
12		20		25		30	12	2 (Ie/DC-11)	
20		63		80		125	175	–	
40		63		80		125	175	–	
4		6		8		12	15	1 (Ie/DC-11)	
14		25		30		40	50	–	
25		30		40		80	100	–	
2		4		5		3	10	0.8 (Ie/DC-11)	
12		20		25		30	40	–	
20		30		40		50	61	–	
40		63		80		125	175	–	
40		63		80		125	175	–	
40		63		80		125	175	–	
40		63		80		125	175	–	
40		63		80		125	175	–	
40		63		80		125	175	–	
25		40		50		60	70	–	
40		63		80		125	175	–	
40		63		80		125	175	–	
5		6		8		10	12	–	
8		10		20		22	24	–	
40		50		63		70	80	–	
1		1.5		2		2.2	2.4	–	
3		4		6		7	8	–	
7		10		15		16	13	–	
1		1.2		1.5		1.6	1.8	–	
2		3		6		7	8	–	
6		8		10		12	14	–	

V2 VZ 2	VVD 2 VVE 2	V3 VZ 3	VVD 3 VVE 3	V4 VZ 4	VVD 4 VVE 4	V5	V6	VZ7 VZ2 0	VZN 05 VZN 06
0.1		0.03						0.1	0.05
0.1		0.03						0.1 (AC-15)	0.05
30 000								30 000 (DC-11)	
Yes								–	
6		16				70		2 x 0.75…1.5	
10		25				95		2 x 1…2.5	
2.1		4				22.6		0.7	

TeSys protection components
Mini-VARIO switch disconnectors for standard applications
Complete units

b 3-pole rotary switch disconnectors, 12 to 20 A
b Marking on operator O I.
b Padlockable operating handle (padlocks not supplied).
b Degree of protection IP 65.



VCDN 20



VCCDN 20



VBDN 20

Main and Emergency stop switch disconnectors for door mounting

Operator			Ith	Reference	Weight
Handle	Front plate	Fixing			
	mm	mm	A		kg
Red, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 60 x 60	Ø 22.5	12	VCDN 12	0.177
			20	VCDN 20	0.177

Main and Emergency stop switch disconnectors for mounting at back of an enclosure (1)

Operator			Ith	Reference	Weight
Handle	Front plate	Fixing			
	mm	mm	A		kg
Red, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 60 x 60	Ø 22.5	12	VCCDN 12	0.334
			20	VCCDN 20	0.334

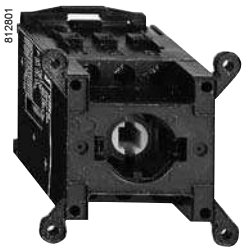
Main switch disconnectors for door mounting

Operator			Ith	Reference	Weight
Handle	Front plate	Fixing			
	mm	mm	A		kg
Black, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Black 60 x 60	Ø 22.5	12	VBDN 12	0.177
			20	VBDN 20	0.177

(1) Switches supplied with a shaft extension VZN 17 and a door interlock plate KZ 32 (see page 4/11)

Characteristics : pages 4/4 to 4/7
Dimensions : pages 4/22 and 4/23
Schemes : page 4/23

TeSys protection components
Mini-VARIO switch disconnectors for standard applications
Switch bodies, add-on modules



VN 20



VZN 11



VZN 14



VZN 05



VZN 26



VZN 08

Switch bodies

Description	Rating A	Reference	Weight kg
3-pole switch disconnectors	12	VN 12	0.110
	20	VN 20	0.110

Add-on modules

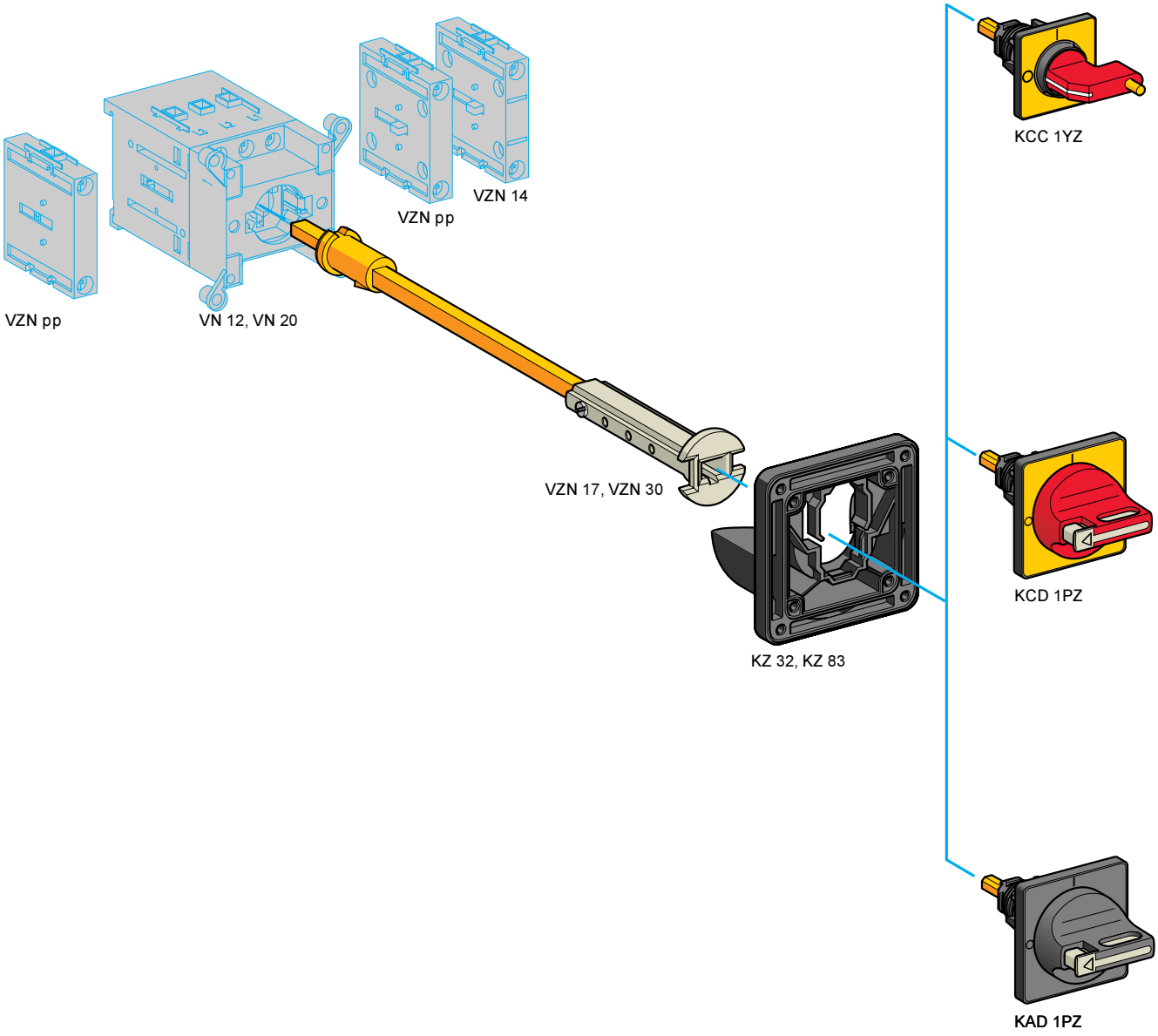
Description	Rating A	Reference	Weight kg
Main pole modules	12	VZN 12	0.020
	20	VZN 20	0.020
Neutral pole module with early make and late break contacts	12 and 20	VZN 11	0.020
Earthing module	12 and 20	VZN 14	0.016
Auxiliary contact block modules	1 N/O late make contact	VZN 05	0.020
	1 N/C early break contact	VZN 06	0.020
Input terminal protection shrouds	For add-on pole modules or auxiliary contact block modules (single-pole shroud)	VZN 26	0.004
	For switch bodies (3-pole shroud)	VZN 08	0.007

a switch body

VZN 12 or VZN 20	+	VN 12 or VN 20	+	VZN 12 or VZN 20
				or
or				VZN 11 + VZN 14
				or
VZN 05 or VZN 06				VZN 05 or VZN 06

4

Characteristics : pages 4/4 to 4/7
Dimensions : pages 4/22 and 4/23
Schemes : page 4/23


VZN pp
VN 12, VN 20
VZN pp
VZN 14
VZN 17, VZN 30
KZ 32, KZ 83
KCC 1YZ
KCD 1PZ
KAD 1PZ

TeSys protection components
Mini-VARIO switch disconnectors for standard applications
Operators and accessories

b Degree of protection IP 65.
b Marking on operator .
b Padlockable operating handle (padlocks not supplied).
b 4/17 and 4/19.
b For other accessories and empty enclosures, see pages 4/20, 4/21 and 2/5.

Operators for main and Emergency stop switch disconnectors

Handle	Front plate mm	Reference	Weight kg
Red, padlockable with 1 padlock (Ø 4 to Ø 6)	Yellow 45 x 45	KCC 1YZ	0.050
Red, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 60 x 60	KCD 1PZ	0.084

Operators for main switch disconnectors

Handle	Front plate mm	Reference	Weight kg
Black, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Black 60 x 60	KAD 1PZ	0.084

Accessories for door interlocking

addition to a direct operator

Description	Front plate	Distance enclosure back/door	Sold in lots of	Unit reference	Weight
	mm	mm			kg
Shaft extensions	–	300…330	1	VZN 17	0.100
		400…430	1	VZN 30	0.130
Door interlock plate	45 x 45 or 60 x 60	–	5	KZ 32	0.170
Plate for door mounting	45 x 45 or 60 x 60	–	5	KZ 83	0.205

4

TeSys protection components
VARIO switch disconnectors for high performance applications
Complete units



VCF 0



VCF 5



VCCF 0

- b 3-pole rotary switch disconnectors, 12 to 175 A
- b Marking on operator I .
- b Padlockable operating handle (padlocks not supplied).
- b Degree of protection IP 65.

Main and Emergency stop switch disconnectors for door mounting

Handle	Front plate mm	Fixing	Rating A	Reference	Weight kg
Red, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 60 x 60	Ø 22.5	12	VCD 02	0.215
			20	VCD 01	0.215
			25	VCD 0	0.215
			32	VCD 1	0.215
			40	VCD 2	0.215
		4 screws	12	VCF 02	0.250
			20	VCF 01	0.250
			25	VCF 0	0.250
			32	VCF 1	0.250
			40	VCF 2	0.250
			63	VCF 3	0.560
			80	VCF 4	0.560
Red, long, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 90 x 90	4 screws	125	VCF 5	1.200
			175	VCF 6	1.200

Main and Emergency stop switch disconnectors for mounting at back of an enclosure (1)

Handle	Front plate mm	Fixing	Rating A	Reference	Weight kg
Red, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 60 x 60	Ø 22.5	12	VCCD 02	0.392
			20	VCCD 01	0.392
			25	VCCD 0	0.392
			32	VCCD 1	0.392
			40	VCCD 2	0.392
		4 screws	12	VCCF 02	0.527
			20	VCCF 01	0.527
			25	VCCF 0	0.527
			32	VCCF 1	0.527
			40	VCCF 2	0.527
			63	VCCF 3	0.440
			80	VCCF 4	0.680
Red, long, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 90 x 90	4 screws	125	VCCF 5	1.320
			175	VCCF 6	1.320

(1) Unit supplied with a shaft extension VZN 17 and a door interlock plate KZ 32 or KZ 74 (see page 4/20).

Characteristics : pages 4/4 to 4/7
Dimensions : pages 4/24 and 4/25
Schemes : page 4/25

TeSys protection components
VARIO switch disconnectors for high performance applications
Complete units



VBD 0



VBF 4



VVE 1

b 3-pole rotary switch disconnectors, 12 to 175 A
b Marking on operator ○┘.
b Padlockable operating handle (padlocks not supplied).
b Degree of protection IP 65.

Main switch disconnectors for door mounting

Handle	Front plate mm	Fixing	Rating A	Reference	Weight kg
Black, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Black 60 x 60	Ø 22.5	12	VBD 02	0.215
			20	VBD 01	0.215
			25	VBD 0	0.215
			32	VBD 1	0.215
			40	VBD 2	0.215
		4 screws	12	VBF 02	0.250
			20	VBF 01	0.250
			25	VBF 0	0.250
			32	VBF 1	0.250
			40	VBF 2	0.250
			63	VBF 3	0.560
			80	VBF 4	0.560
Red, long, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Black 90 x 90	4 screws	125	VBF 5	1.200
			175	VBF 6	1.200

Main and Emergency stop switch disconnectors

For mounting in an enclosure or for modular distribution boards

Handle	Front plate mm	Rating A	Reference	Weight kg
Red, padlockable with 1 padlock (Ø 4 to Ø 6)	Yellow 45 x 45	25	VVE 0	0.250
		32	VVE 1	0.250
		40	VVE 2	0.250
		63	VVE 3	0.530
		80	VVE 4	0.530

Main switch disconnectors

For mounting in an enclosure or for modular distribution boards

Handle	Front plate mm	Rating A	Reference	Weight kg
Black, not padlockable	Black 45 x 45	25	VVD 0	0.250
		32	VVD 1	0.250
		40	VVD 2	0.250
		63	VVD 3	0.560
		80	VVD 4	0.560

Characteristics : pages 4/4 to 4/7
Dimensions : pages 4/24 and 4/25
Schemes : page 4/25

TeSys protection components
VARIO switch disconnectors for high performance applications
Switch bodies, add-on modules, auxiliary contacts
(for customer assembly)


V0


V5


VZ 0


VZ 11


VZ 15


VZ 20

Switch bodies

Description	Rating A	Reference	Weight kg
3-pole switch disconnectors (1)	12	V02	0.200
	20	V01	0.200
	25	V0	0.200
	32	V1	0.200
	40	V2	0.200
	63	V3	0.500
	80	V4	0.500
	125	V5	0.900
	175	V6	0.900

Add-on modules

Description	Rating A	Reference	Weight kg
Main pole modules	12	VZ 02	0.050
	20	VZ 01	0.050
	25	VZ 0	0.050
	32	VZ 1	0.050
	40	VZ 2	0.050
	63	VZ 3	0.100
	80	VZ 4	0.100
Neutral pole modules with early make and late break contacts (1)	12 to 40	VZ 11	0.050
	63 to 80	VZ 12	0.100
	125 and 175	VZ 13	0.250
Earthing modules	12 to 40	VZ 14	0.050
	63 and 80	VZ 15	0.100
	125 and 175	VZ 16	0.250

Auxiliary contact block modules

Description	Type	Reference	Weight kg
Auxiliary contact block modules with 2 auxiliary contacts	N/O + N/C (2)	VZ 7	0.050
	N/O + N/O	VZ 20	0.050

(1) Protection shrouds are available if required: see page 4/20.
(2) Late make N/O, early break N/C contacts

Characteristics : pages 4/4 to 4/7
Dimensions : pages 4/24 and 4/25
Schemes : page 4/25

TeSys protection components
VARIO switch disconnectors for high performance applications
Switch bodies, add-on modules, auxiliary contacts
(for customer assembly)

switch body

1 add-on module on each side of the switch body

VZ 7 or VZ 20	+	V0p	+	VZ 7 or VZ 20	VZ 7	+	V5	+ VZ 7
or				or	or			or
VZ 11 or VZ 12	+	V0	+	VZ 11 or VZ 12	VZ 20	+	or	+ VZ 20
or		to		or	or			or
VZ 14 or VZ 15	+		+	VZ 14 or VZ 15	VZ 13	+	V6	+ VZ 13
or		V4		or	or			or
VZ 0p/VZ 0 to VZ 4	+		+	VZ 0p/VZ 0 to VZ 4	VZ 16	+		+ VZ 16

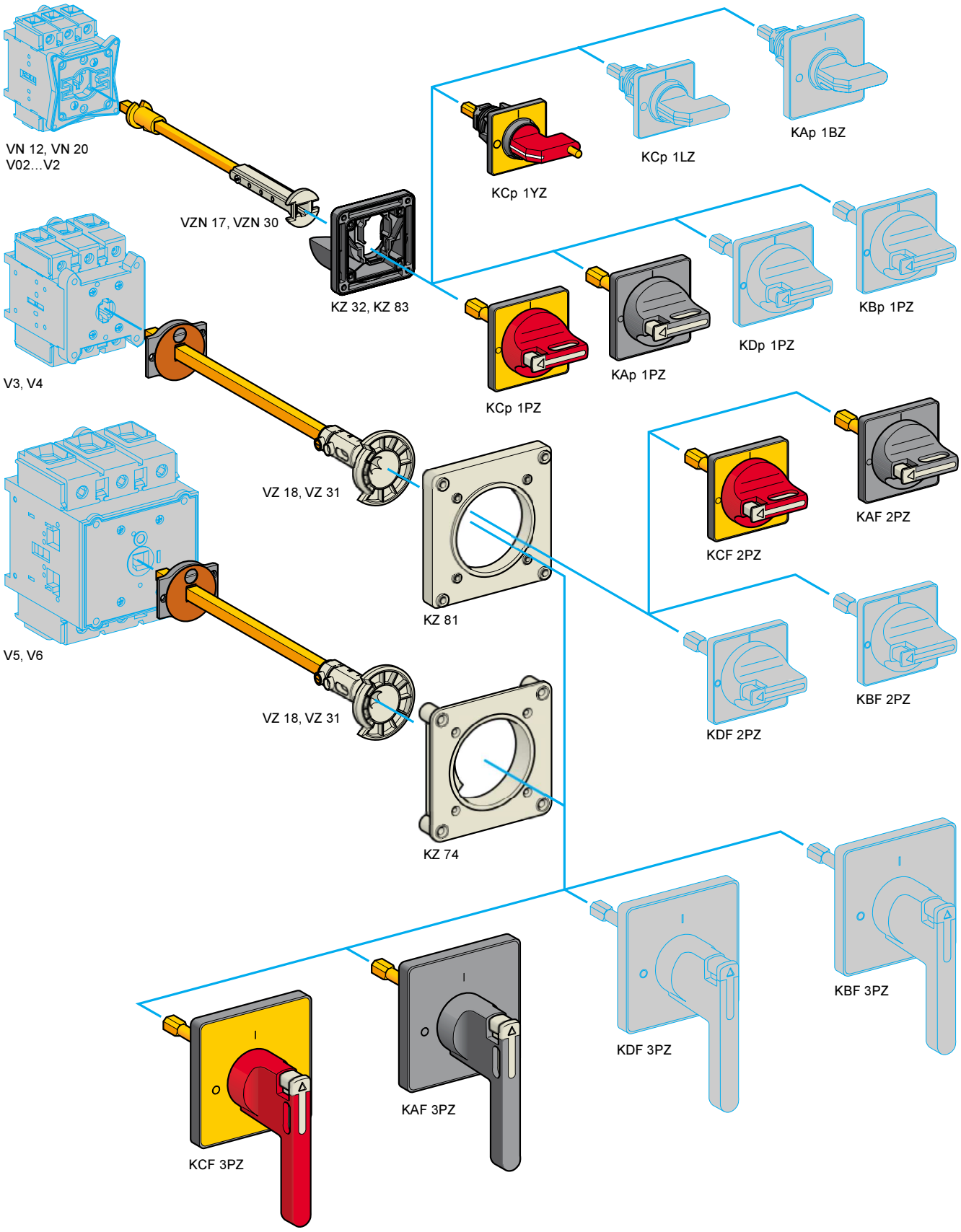
2 add-on modules on each side of the switch body

VZ 0p	+ VZ 0p	+	V0p	+ VZ 0p	+ VZ 7	or	VZ 20	or	VZ 11	or	VZ 14
VZ 0	+ VZ 0	+	V0	+ VZ 0	+ VZ 7	or	VZ 20	or	VZ 11	or	VZ 14
VZ 1	+ VZ 1	+	V1	+ VZ 1	+ VZ 7	or	VZ 20	or	VZ 11	or	VZ 14
VZ 2	+ VZ 2	+	V2	+ VZ 2	+ VZ 7	or	VZ 20	or	VZ 11	or	VZ 14
VZ 3	+ VZ 3	+	V3	+ VZ 3	+ VZ 7	or	VZ 20	or	VZ 12	or	VZ 15
VZ 4	+ VZ 4	+	V4	+ VZ 4	+ VZ 7	or	VZ 20	or	VZ 12	or	VZ 15

Nota : The add-on modules mounted next to the switch body are main pole modules. Maximum of 3 main pole modules per switch body.

4

Characteristics : pages 4/4 to 4/7
Dimensions : pages 4/24 and 4/25
Schemes : page 4/25


VN 12, VN 20
V02…V2
VZN 17, VZN 30
KZ 32, KZ 83
KCp 1YZ
KCp 1LZ
KAp 1BZ
V3, V4
KCp 1PZ
KAp 1PZ
KDp 1PZ
KBp 1PZ
VZ 18, VZ 31
KZ 81
KCF 2PZ
KAF 2PZ
V5, V6
VZ 18, VZ 31
KZ 74
KDF 2PZ
KBF 2PZ
KCF 3PZ
KAF 3PZ
KDF 3PZ
KBF 3PZ

TeSys protection components
Mini-VARIO and VARIO switch disconnectors
Operators, handles and front plates
(for customer assembly)

b Marking on operator
b Padlockable operating handle (padlocks not supplied).
b Degree of protection IP 65.

Handles and front plates for main and Emergency stop switch disconnectors

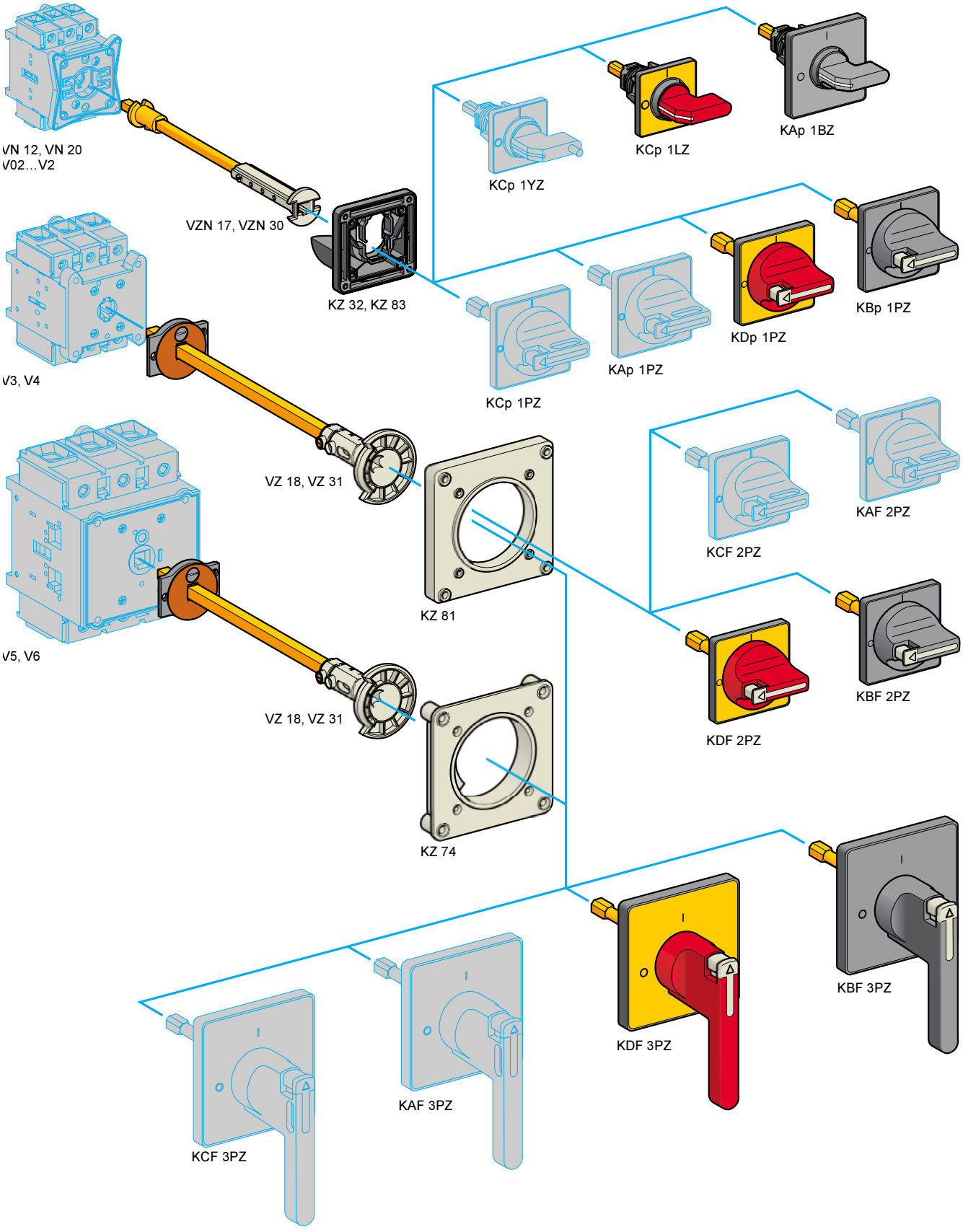
For switch body	Operator			Reference	Weight
	Handle	Front plate			
		Dimensions	Fixing		
		mm			kg
VN 12, VN 20 V02…V2	Red, padlockable with 1 padlock (Ø 4 to Ø 6)	Yellow 45 x 45	Ø 22.5	KCC 1YZ	0.050
			4 screws	KCE 1YZ	0.040
	Red, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 60 x 60	Ø 22.5	KCD 1PZ	0.082
			4 screws	KCF 1PZ	0.075
V3 and V4	Red, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 60 x 60	4 screws	KCF 2PZ	0.070
V5 and V6	Red, long, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 90 x 90	4 screws	KCF 3PZ (1)	0.160

Handles and front plates for main switch disconnectors

For switch body	Operator			Reference	Weight
	Handle	Front plate			
		Dimensions	Fixing		
		mm			kg
VN 12, VN 20 V02…V2	Black, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Black 60 x 60	Ø 22.5	KAD 1PZ	0.082
			4 screws	KAF 1PZ	0.075
V3 and V4	Black, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Black 60 x 60	4 screws	KAF 2PZ	0.070
V5 and V6	Black, long, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Black 90 x 90	4 screws	KAF 3PZ (1)	0.160

(1) For door mounting of 63 and 80 A switch disconnectors, adapter plate KZ 106 must be ordered separately (see page 4/20).

Characteristics : pages 4/4 to 4/7
Dimensions : pages 4/22 to 4/25
Schemes : pages 4/23 and 4/25


VN 12, VN 20
V02…V2
VZN 17, VZN 30
KZ 32, KZ 83
KCp 1YZ
KCp 1LZ
KAp 1BZ
V3, V4
KCp 1PZ
KAp 1PZ
KDp 1PZ
KBp 1PZ
VZ 18, VZ 31
KZ 81
KCF 2PZ
KAF 2PZ
V5, V6
VZ 18, VZ 31
KZ 74
KDF 2PZ
KBF 2PZ
KCF 3PZ
KAF 3PZ
KDF 3PZ
KBF 3PZ

TeSys protection components
Mini-VARIO and VARIO switch disconnectors
Operators, handles and front plates
(for customer assembly)

b Marking on operator
b Degree of protection IP 65.

Handles and front plates for Emergency stop switch disconnectors

For switch body	Operator			Reference	Weight
	Handle	Front plate			
		Dimensions	Fixing		
		mm			kg
VN 12, VN 20 V02…V2	Red, not padlockable	Yellow 45 x 45	Ø 22.5	KCC 1LZ	0.050
			4 screws	KCE 1LZ	0.040
		Yellow 60 x 60	Ø 22.5	KDD 1PZ	0.082
			4 screws	KDF 1PZ	0.075
V3 and V4	Red, long, not padlockable	Yellow 60 x 60	4 screws	KDF 2PZ	0.070
V5 and V6	Red, long, not padlockable	Yellow 90 x 90	4 screws	KDF 3PZ (1)	0.160

Handles and front plates for switch disconnectors

For switch body	Operator			Reference	Weight
	Handle	Front plate			
		Dimensions	Fixing		
		mm			kg
VN 12, VN 20 V02…V2	Black, not padlockable	Black 45 x 45	Ø 22.5	KAC 1BZ	0.050
			4 screws	KAE 1BZ	0.040
		Black 60 x 60	Ø 22.5	KBD 1PZ	0.055
			4 screws	KBF 1PZ	0.045
V3 and V4	Black, not padlockable	Black 60 x 60	4 screws	KBF 2PZ	0.070
V5 and V6	Black, not padlockable	Black 90 x 90	4 screws	KBF 3PZ (1)	0.160

(1) For door mounting of 63 and 80 A switch disconnectors, adapter plate KZ 106 must be ordered separately (see next page).

4


580583

VZ 8


580584

VZ 26

Input terminal protection shrouds

Description	For use on	Reference	Weight kg
For switch bodies (3-pole shroud)	V02…V2	VZ 8	0.015
	V3 and V4	VZ 9	0.020
	V5 and V6	VZ 10	0.060
For add-on pole modules (single-pole shroud)	VZ 02…VZ 2, VZ 11, VZ 14	VZ 26	0.005
	VZ 3, VZ 4, VZ 12, VZ 15	VZ 27	0.007
	VZ 13, VZ 16	VZ 28	0.020
For contact blocks with 2 auxiliary contacts	–	VZ 29	0.005

Components for door interlocking

addition to a direct operator

Description	For use on	Distance enc. back/door	Sold in lots of	Unit reference	Weight
		mm			kg
Shaft extensions	VN 12, VN 20 V02…V2	300…330	1	VZN 17 (1)	0.100
		400…430	1	VZN 30 (1)	0.130
	V02…V2	300…330	1	VZ 17	0.075
		400…430	1	VZ 30	0.125
	V3 and V4	300…320	1	VZ 18	0.170
		400…420	1	VZ 31	0.215
	V5 and V6	330…350	1	VZ 18	0.170
		430…450	1	VZ 31	0.215
Door interlock plates	VN 12, VN 20 V02…V2	–	5	KZ 32	0.177
	V3…V6	–	5	KZ 74	0.020

Description	For use on	Front plate dimensions	Sold in lots of	Unit reference	Weight
		mm			kg
Plates for door mounting of handles with	VN 12, VN 20 V02…V2	45 x 45 or 60 x 60	5	KZ 83	0.205
	V3…V6	60 x 60 or 90 x 90	5	KZ 81	0.010
Adapter plate for switch disconnectors	V3 and V4	90 x 90	5	KZ 106	0.075

(1) Can be used with V02 to V2 switches.


580595

KZ 32


580527

KZ 81

Characteristics : pages 4/4 to 4/7
Dimensions : pages 4/22 to 4/25
Schemes : pages 4/23 and 4/25

812783



KZ 15

580528



KZ 67

812785



Z01

Accessories for operators

Description	For use on	Front plate dimensions	Sold in lots of	Unit reference	Weight
		mm			kg
Legend holder with silver coloured blank legend plate	Front plate	45 x 45	5	KZ 13	0.060
		60 x 60	5	KZ 15	0.065
		90 x 90	5	KZ 103	0.070
Legend holders without legend plate	Front plate	45 x 45	20	KZ 14	0.060
		60 x 60	10	KZ 16	0.065
		90 x 90	5	KZ 101	0.070
Silver coloured blank legend plates for engraving by customer	KZ 14	–	20	KZ 76	0.020
	KZ 16	–	10	KZ 77	0.010
	KZ 101	–	5	KZ 100	0.005
Seals	VN 12, VN 20	45 x 45	5	KZ 65	0.037
	V02…V2	60 x 60	5	KZ 66	0.033
	V3 and V4	60 x 60	5	KZ 62	0.033
	V3…V6	90 x 90	5	KZ 67	0.064
Tightening tool	For operators with Ø 22.5	–	5	Z01	0.050

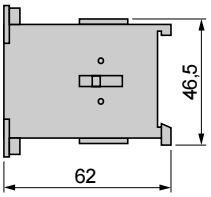
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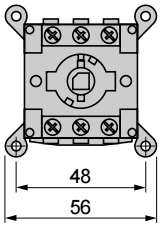
Characteristics : pages 4/4 to 4/7
Dimensions : pages 4/22 to 4/25
Schemes : pages 4/23 and 4/25

Dimensions

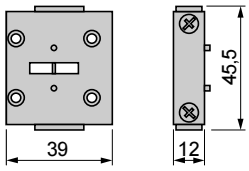
Switch disconnectors

Switch bodies VN 12, VN 20

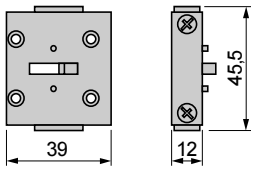




Add-on modules VZN 12, VZN 20



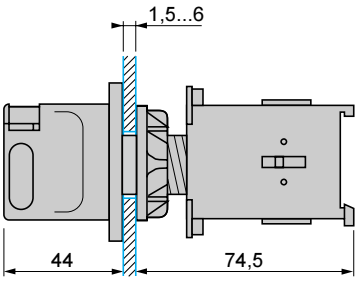
Add-on modules VZN 11, VZN 14 VZN 05 and VZN 06

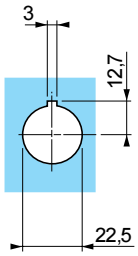


Mounting

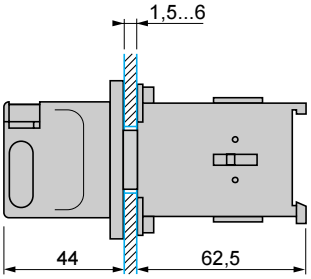
Switch disconnector mounted on enclosure door

VN 12, VN 20

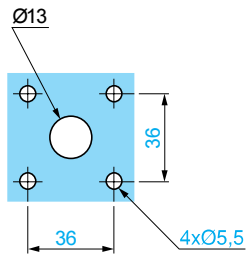




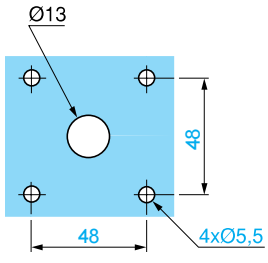
VN 12, VN 20



45 x 45 front plate



60 x 60 front plate

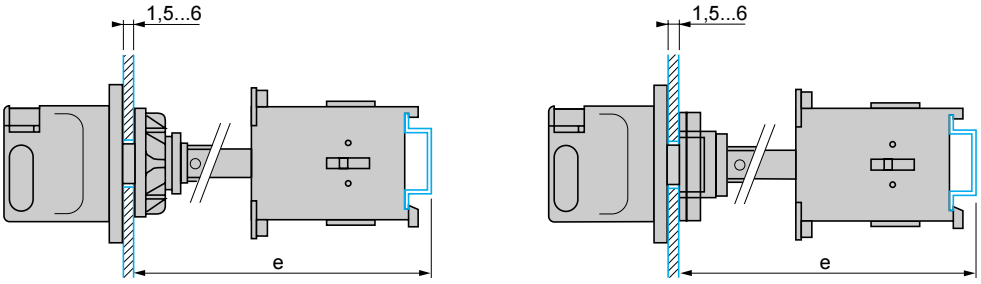


Characteristics : page 4/4
References : page 4/14
Schemes : page 4/23

Mounting (continued)

Switch disconnector mounted at back of enclosure with shaft extension VZN 17 or VZN 30 (clip-on mounting on 6 rail)

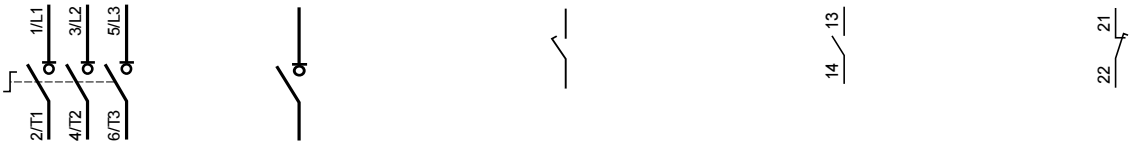
VN 12, VN 20



	Shaft extension	Distance (e) enclosure back/door
		mm
VN 12, VN 20	VZN 17	300...330
	VZN 30	400...430

Schemes

Switch body VN 12, VN 20	Main pole module VZN 12, VZN 20	Neutral pole module VZN 11	Auxiliary contact blocks VZN 05	Auxiliary contact blocks VZN 06

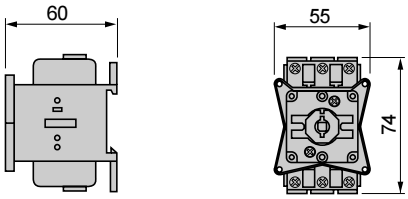


Characteristics : page 4/4
References : page 4/14

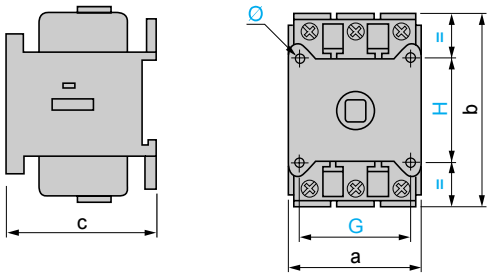
Dimensions

Switch disconnectors

Switch bodies V0p, V0 to V2



Switch bodies V3 to V6



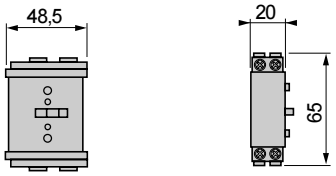
	a	b	c	G	H	Ø
V3, V4	60	83	65	48	48	5.5
V5, V6	90	125	90	68	68	5.5

Add-on modules VZ 02 to VZ 4 and VZ 11 to VZ 16



	a	b	c
VZ 02 and VZ 01, VZ 0 to VZ 2, VZ 11, VZ 14	16	74	35
VZ 3, VZ 4, VZ 12, VZ 15	20	83	46
VZ 13, VZ 16	30	125	63

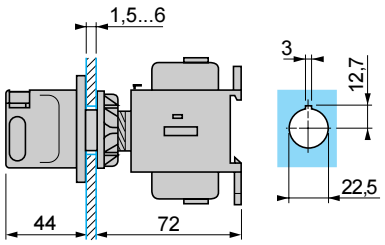
Add-on modules VZ 7, VZ 20



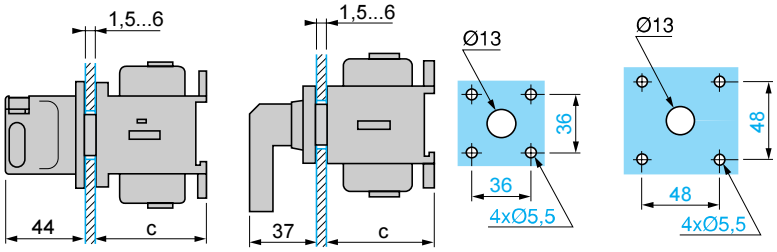
Mounting

Switch disconnector mounted on enclosure door

V0p, V0 to V4

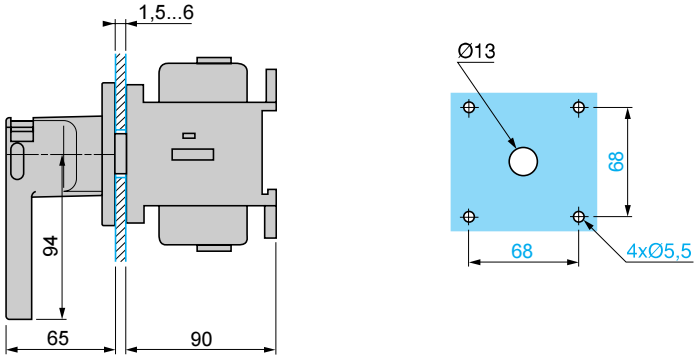


V0p, V0 to V4 | 45 x 45 front plate V0p, V0 to V2 | 60 x 60 front plate V0p, V0 to V4



	c
V0p, V0 to V2	60
V3, V4	65

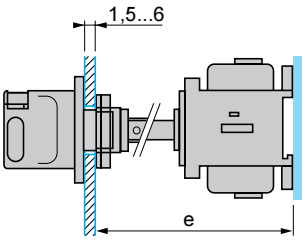
90 x 90 front plate



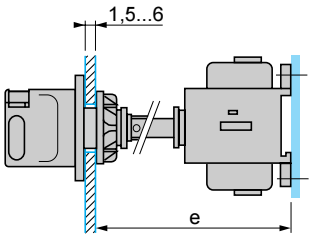
Mounting (continued)

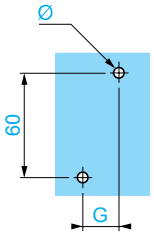
Switch disconnector mounted at back of enclosure

V0p, V0 to V2 with shaft extension VZ 17 or VZ 30 (clip-on mounting on 6 rail possible for V0p to V2)

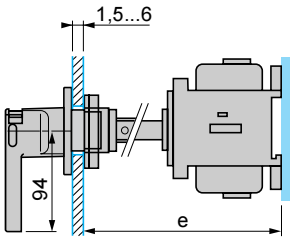


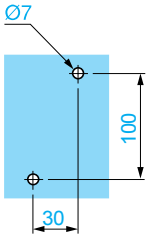
V3 to V4 with shaft extension VZ 18 or VZ 31





V5 and V6 with shaft extension VZ 18 or VZ 31



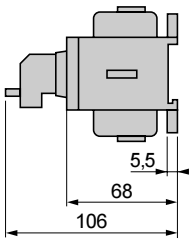


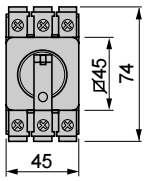
	Shaft extension	Distance (e) enc.back/door	Ø	G
		mm		
V02 and V01 V0 to V2	VZ 17	300...330	2 x 4.2	15
	VZ 30	400...430	2 x 4.2	15
V3 and V4	VZ 18	300...320	2 x 5	20
	VZ 31	400...420	2 x 5	20

	Shaft extension	Distance (e) enc. back/door
		mm
V5 and V6	VZ 18	300...350
	VZ 31	430...450

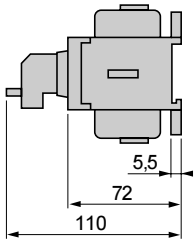
Switch disconnectors for modular distribution boards

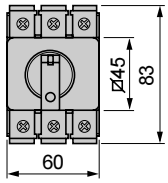
VVp 0 to VVp 2





VVp 3 to VVp 4

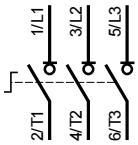




Schemes

Switch body

V02 and V01
V0 to V6



Main pole module

VZ 02 and VZ 01
VZ 0 to VZ 4



Neutral pole module

VZ 11 to VZ 13



Auxiliary contact blocks

VZ 7



VZ 20



TeSys protection components
Fuse protection

Applications	Protection of control circuits or transformers



Breaking under load	–
Fuse type	NF C or DIN
Cartridge fuses	1…125 A
Device type	Fuse carriers
References	DF
Pages	4/29

Protection of motors	Protection of motors or variable speed drives
	
Yes, only if combined with a contactor	Yes
NF C or DIN	NF C, DIN, BS or UL
1…125 A	1…1250 A
Fuse carriers	Switch-disconnector-fuses
LS1 and GK1	**GS**
4/36	4/42

TeSys protection components
Fuse carriers

Fuse carrier type			DF8		DF10		DF14		DF22	
Environment characteristics										
Conforming to standards			IEC 60947-3, UL 512, CSA 22-2 n° 39							
Protective treatment			"TH"							
Degree of protection	Conforming to IEC 60529		IP 20							
Ambient air temperature	Storage	°C	- 40…+ 80							
	For operation, with derating (1)	°C	- 20…+ 60							
Operating positions	Without derating		± 23° in relation to normal mounting plane							
Flame resistance	Conforming to IEC 60695-2-1	°C	960							
Pole characteristics										
Fuse size		mm	8.5 x 31.5		10 x 38		14 x 51		22 x 58	
Rated insulation voltage (Ui) with tubular links, a.c. supply		V	500		690		690		690	
Rated impulse withstand voltage (Uimp)		kV	6		6		8		8	
Conventional thermal current (Ith) for ambient air temperature y 40 °C (1)										
	With tubular links	A	25		32		50		125	
	With aM cartridge fuses	A	25		32		50		125	
	With gG cartridge fuses	A	25		32		50		100	
Rated conditional short-circuit current Conforming to IEC 60947-3										
	400 V	kA	20		120		120		120	
	500 V	kA	–		120		120		120	
	690 V	kA	–		–		80		80	
Peak withstand current (dynamic stress) Conforming to IEC 60269-1										
	With tubular links	kA	11		15		15		19	
Cabling (number of conductors x c.s.a.)			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
	Solid cable	mm^2	1 x 1.5	1 x 16 2 x 6	1 x 1.5	1 x 16 2 x 6	1 x 2.5	1 x 25 2 x 10	1 x 2.5	1 x 35 2 x 25
	Flexible cable without cable end	mm^2	1 x 1.5	1 x 10 2 x 6	1 x 1.5	1 x 10 2 x 6	1 x 2.5	1 x 25 2 x 10	1 x 2.5	1 x 35 2 x 16
	Flexible cable with cable end	mm^2	1 x 1.5	1 x 10 2 x 6	1 x 1.5	1 x 10 2 x 6	1 x 2.5	1 x 25 2 x 10	1 x 2.5	1 x 35 2 x 16
Tightening torque		Nm	2.2				3.5		4	
Characteristics of early break and signalling contacts DF14 AM and DF22 AM										
Rated insulation voltage (Ui) a.c. supply		V	250							
Conventional thermal current (Ith) for ambient air temperature y 40 °C (1)		A	5							
Rated operational current			24 V		48 V		127 V		240 V	
	Category AC-15	A	4		4		3		2.5	
	Category DC-13	A	3		1		0.2		0.1	
rated characteristics	Conforming to IEC 60947-5-1		B300							
Low load operating characteristics	Minimum voltage	V	10							
	Minimum current	mA	30							
Cabling			Faston connectors							

Maximum temperature	20° C	30° C	40° C	50° C	60° C
Max. relative humidity	95 %	90 %	80 %	50 %	50 %
Current derating	1	0.95	0.9	0.8	0.7

References: pages 4/29 and 4/30 | Substitution: page 4/30 | Dimensions: page 4/31 | Schemes: page 4/31

TeSys protection components
Fuse carriers

106786

DF10 1

106788

DF10 3N

106793

DF14 1

106795

DF14 3NC

106823

DF22 1

106825

DF22 3NC

106791

DF10 1NV

106792

DF10 3V

106834

DF14 1NV

106822

DF14 3VC

106834

DF22 1NV

106835

DF22 3VC

Fuse carriers (1)

Conventional thermal current (Ith)	Size of cartridge fuse or link	Composition	Sold in lots of	Unit reference	Weight
A	mm				kg
25	8.5 x 31.5	1 P	12	DF8 1	0.061
		N	12	DF10 N	0.071
		1 P + N (2)	6	DF8 1N	0.132
		2 P	6	DF8 2	0.122
		3 P	4	DF8 3	0.183
		3 P + N (2)	3	DF8 3N	0.254
32	10 x 38	1 P	12	DF10 1	0.061
		N	12	DF10 N	0.071
		1 P + N (2)	6	DF10 1N	0.132
		2 P	6	DF10 2	0.122
		3 P	4	DF10 3	0.183
		3 P + N (2)	3	DF10 3N	0.254
50	14 x 51	1 P	6	DF14 1	0.140
		N	6	DF14 N	0.150
		1 P + N (2)	3	DF14 1N	0.290
		2 P	3	DF14 2	0.280
		3 P	2	DF14 3C (3)	0.420
		3 P + N (2)	1	DF14 3NC (3)	0.570
125	22 x 58	1 P	6	DF22 1	0.218
		N	6	DF22 N	0.238
		1 P + N (2)	3	DF22 1N	0.456
		2 P	3	DF22 2	0.436
		3 P	2	DF22 3C (3)	0.654
		3 P + N (2)	1	DF22 3NC (3)	0.892

Fuse carriers with “blown fuse” indicators (neon) (1) (4)

Conventional thermal current (Ith)	Size of cartridge fuse or link	Composition	Sold in lots of	Unit reference	Weight
A	mm				kg
25	8.5 x 31.5	1 P	12	DF8 1V	0.064
		1 P + N (2)	6	DF8 1NV	0.135
		2 P	6	DF8 2V	0.125
		3 P	4	DF8 3V	0.186
		3 P + N (2)	3	DF8 3NV	0.257
32	10 x 38	1 P	12	DF10 1V	0.064
		1 P + N (2)	6	DF10 1NV	0.135
		2 P	6	DF10 2V	0.125
		3 P	4	DF10 3V	0.186
		3 P + N (2)	3	DF10 3NV	0.257
50	14 x 51	1 P	6	DF14 1V	0.143
		1 P + N (2)	3	DF14 1NV	0.293
		2 P	3	DF14 2V	0.283
		3 P	2	DF14 3VC (3)	0.423
		3 P + N (2)	1	DF14 3NVC (3)	0.573
125	22 x 58	1 P	6	DF22 1V	0.221
		1 P + N (2)	3	DF22 1NV	0.459
		2 P	3	DF22 2V	0.439
		3 P	2	DF22 3VC (3)	0.657
		3 P + N (2)	1	DF22 3NVC (3)	0.895

(1) Each pole can be marked. A clip-in marker holder is provided for this purpose. Clip-in markers type AB1 Rp or AB1 Gp can also be used.

break, “blown fuse” signalling and “fuse present” signalling contacts.
(4) Operational voltage of the blown fuse indicator: 110 V...690 V.

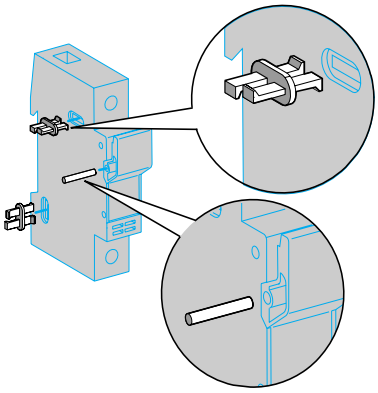
Characteristics: page 4/28 | Substitution: page 4/30 | Dimensions: page 4/31 | Schemes: page 4/31

106836



DF14 AMp

524196



Detail of assembly clip and pin mounting

Accessories

Auxiliary early break and "blown fuse" signalling contacts (1)

Fuse carriers to be equipped	Size of cartridge fuse or link	Number of contacts	Sold in lots of	Unit reference	Weight kg
DF14 (3 P or 3 P + N)	14 x 51	1	1	DF14 AM1	0.025
		2	1	DF14 AM2	0.029
DF22 (3 P or 3 P + N)	22 X 58	1	1	DF22 AM1	0.032
		2	1	DF22 AM2	0.035

Fuse carrier assembly kits (2)

Fuse carriers to be assembled	Size of cartridge fuse or link	Composition	Sold in lots of	Unit reference	Weight kg
DF8	8.5 x 31.5	1 pin, 2 clips	12	DF10 AP	0.001
DF10	10 x 38				
DF14	14 x 51	1 pin, 3 clips	10	DF14 AP	0.003
DF22	22 x 58	1 pin, 3 clips	10	DF22 AP	0.003

Marking accessories

Description	Composition	Marking	Sold in lots of	Unit reference	Weight kg
Clip-in markers	Strip of 10 identical numbers or letters	0…9	25	AB1 Rp (3)	0.002
		A…Z	25	AB1 Gp (3)	0.002

Substitution

Fuse carriers

Old range			New range	
Reference	Size of cartridge fuse or link	Composition	Reference w/o indicator	Reference with indicator
DF6 AB08	8.5 x 31.5	1 P	DF8 1	DF8 1V
DF6 AB10	10 x 38	1 P	DF10 1	DF10 1V
DF6 N10	8.5 x 31.5 or 10 x 38	1 N	DF10 N	–
GK1 CC	8.5 x 31.5	1 P + N	DF8 1N	DF8 1NV
GK1 CD	8.5 x 31.5	2 P	DF8 2	DF8 2V
GK1 CF	8.5 x 31.5	3 P	DF8 3	DF8 3V
GK1 CH	8.5 x 31.5	3 P + N	DF8 3N	DF8 3NV
GK1 DC	10 x 38	1 P + N	DF10 1N	DF10 1NV
GK1 DD	10 x 38	2 P	DF10 2	DF10 2V
GK1 DF	10 x 38	3 P	DF10 3	DF10 3V
GK1 DH	10 x 38	3 P + N	DF10 3N	DF10 3NV
GK1 EB	14 x 51	1 P	DF14 1	DF14 1V
GK1 EN	14 x 51	1 N	DF14 N	–
GK1 EC	14 x 51	1 P + N	DF14 1N	DF14 1NV
GK1 ED	14 x 51	2 P	DF14 2	DF14 2V
GK1 EF	14 x 51	3 P	DF14 3C	DF14 3VC
GK1 EH	14 x 51	3 P + N	DF14 3NC	DF14 3NVC
GK1 FB	22 x 58	1 P	DF22 1	DF22 1V
GK1 FN	22 x 58	1 N	DF22 N	–
GK1 FC	22 x 58	1 P + N	DF22 1N	DF22 1NV
GK1 FD	22 x 58	2 P	DF22 2	DF22 2V
GK1 FF	22 x 58	3 P	DF22 3C	DF22 3CV
GK1 FH	22 x 58	3 P + N	DF22 3NC	DF22 3NVC

Fuse carrier assembly kits

Old range		New range
Reference	Size of cartridge fuse or link	Reference
GK1 AP2	8.5 x 31.5 or 10 x 38	DF10 AP
GK1 AP3	8.5 x 31.5 or 10 x 38	DF10 AP
	14 x 51	DF14 AP
GK1 AP4	8.5 x 31.5 or 10 x 38	DF10 AP
	22 x 58	DF22 AP
GK1 AP5	14 x 51	DF14 AP
GK1 AP6	14 x 51	DF14 AP
	22 x 58	DF22 AP
GK1 AP9	22 x 58	DF22 AP

(1) These auxiliary contacts provide the following functions: early break, "blown fuse" signalling (if

(2) 1 pin and 2 clips are required to assemble two DF8 or DF10 fuse carriers together.
1 pin and 3 clips are required to assemble two DF14 or DF22 fuse carriers together.

(3) When ordering, replace the p in the reference with the number or letter required. Example: AB1 R1 or AB1 GA.

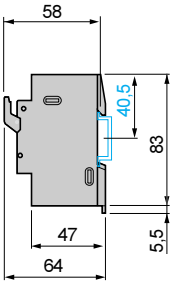
Characteristics: page 4/28
Dimensions: page 4/31
Schemes: page 4/31

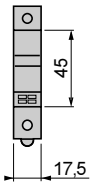
Dimensions

Modular fuse carriers 25 A and 32 A

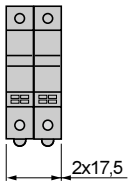
Mounting on 35 mm 5 rail

DF8 1 and DF8 1V
DF10 1 and DF10 1V
DF10 N

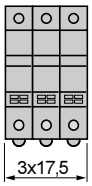




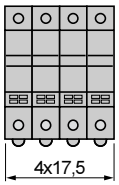
DF8 1N and DF8 1NV
DF8 2 and DF8 2V
DF10 1N and DF10 1NV
DF10 2 and DF10 2V



DF8 3 and DF8 3V
DF10 3 and DF10 3V



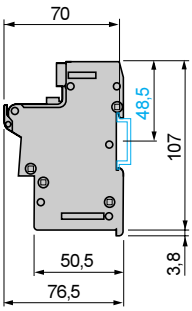
DF8 3N and DF8 3NV
DF10 3N and DF10 3NV

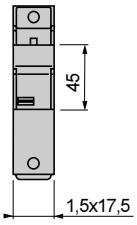


Modular fuse carriers 50 A

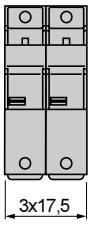
Mounting on 35 mm 5 rail

DF14 1 and DF14 1V
DF14 N

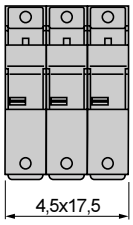




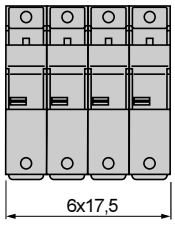
DF14 1N and DF14 1NV
DF14 2 and DF14 2V



DF14 3C and DF14 3VC



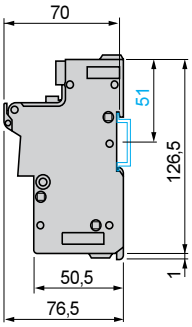
DF14 3NC and DF14 3NVC

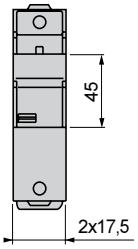


Modular fuse carriers 125 A

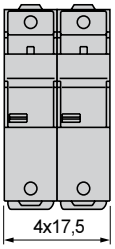
Mounting on 35 mm 5 rail

DF22 1 and DF22 1V
DF22 N

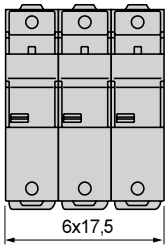




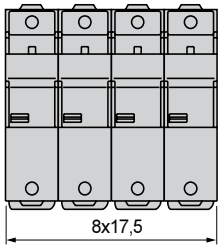
DF22 1N and DF22 1NV
DF22 2 and DF22 2V



DF22 3C and DF22 3VC



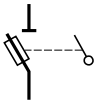
DF22 3NC and DF22 3NVC



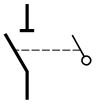
Schemes

Modular fuse carriers

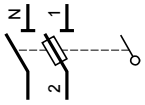
DFp 1P



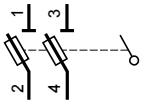
DFp N



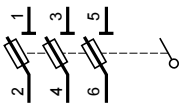
DFp 1P + N



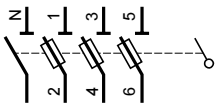
DFp 2P



DFp 3P



DFp 3P + N



Characteristics: page 4/28
References: pages 4/29 and 4/30
Substitution: page 4/30

TeSys protection components
Fuse carriers for the North American market, conforming to standards UL and CSA,

Environment characteristics

Fuse carrier type			DFCC
Conforming to standards			IEC 60947-3, UL 512, CSA 22-2 n° 39
Protective treatment			"TH"
Degree of protection	Conforming to IEC 60529		IP 20
Ambient air temperature	Storage	°C	- 40…+ 80
	For operation, with derating (1)	°C	- 20…+ 60
Operating positions	Without derating		± 23° in relation to normal vertical mounting plane
Flame resistance	Conforming to IEC 60695-2-1	°C	960

Pole characteristics

Fuse carrier type			DFCC	
Fuse size			Class CC	
Rated insulation voltage (Ui) with tubular links, a.c. supply		V	600	
Rated impulse withstand voltage (Uimp)		kV	6	
Conventional thermal current (Ith) for ambient air temperature y 40 °C (1)				
	With tubular links	A	30	
	With aM cartridge fuses	A	30	
	With gG cartridge fuses	A	30	
Short-circuit current withstand With UL 248-4 Class CC fuses				
	Conforming to UL 512 at 600 V	kA	200	
Cabling (number of conductors x c.s.a.)			Min.	Max.
	Solid cable	mm^2	1 x 1.5	1 x 16 2 x 6
	Flexible cable without cable end	mm^2	1 x 1.5	1 x 10 2 x 6
	Flexible cable with cable end	mm^2	1 x 1.5	1 x 10 2 x 6
Tightening torque		Nm	2.2	

(1) :

Maximum temperature	20° C	30° C	40° C	50° C	60° C
Max. relative humidity	95 %	90 %	80 %	50 %	50 %
	1	0.95	0.9	0.8	0.7

References : page 4/33
Dimensions : page 4/33
Schemes : page 4/33

TeSys protection components
Fuse carriers for the North American market, conforming to standards UL and CSA,

References

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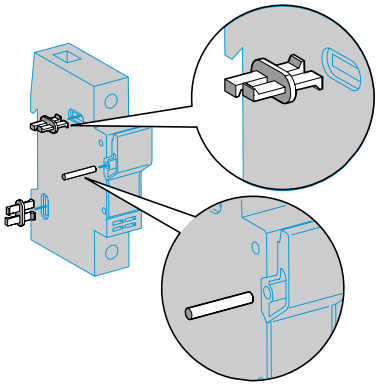
DFCC 1

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DFCC 3V

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Detail of assembly clip and pin mounting

Fuse carriers (1)

Conventional thermal current (Ith)	Size of cartridge fuse or link	Composition	Sold in lots of	Unit reference	Weight
A					kg
30	Class CC	1 P	12	DFCC 1	0.061
		2 P	12	DFCC 2	0.122
		3 P	6	DFCC 3	0.183

Fuse carriers with "blown fuse" indicators (neon) (1), (2)

Conventional thermal current (Ith)	Size of cartridge fuse or link	Composition	Sold in lots of	Unit reference	Weight
A					kg
30	Class CC	1 P	12	DFCC 1V	0.064
		2 P	6	DFCC 2V	0.125
		3 P	6	DFCC 3V	0.186

Fuse carrier assembly kits (3)

Fuse carriers to be assembled	Size of cartridge fuse or link	Composition	Sold in lots of	Unit reference	Weight kg
DFCC	Class CC	1 pin, 2 clips	12	DF10 AP	0.001

Marking accessories

Description	Composition	Marking	Sold in lots of	Unit reference	Weight kg
Clip-in markers	Strip of 10 identical numbers or letter	0...9	25	AB1 Rp (4)	0.002
		A...Z	25	AB1 Gp (4)	0.002

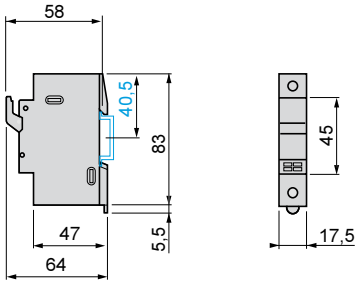
(1) Each pole can be marked. A clip-in marker holder is provided for this purpose. Clip-in markers type AB1 Rp or AB1 Gp can also be used.
(2) Operational voltage of the blown fuse indicator: 110 V...690 V.
(3) 1 pin and 2 clips are required to assemble two DFCC fuse carriers together.
(4) When ordering, replace the p in the reference with the number or letter required. Example: AB1 R1 or AB1 GA.

Dimensions

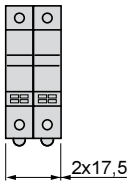
Modular fuse carriers 30 A

Mounting on 35 mm 5 rail

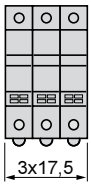
DFCC 1 and DFCC 1V



DFCC 2 and DFCC 2V



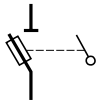
DFCC 3 and DFCC 3V



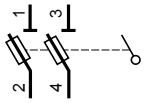
Schemes

Modular fuse carriers

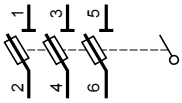
DFCC 1P



DFCC 2P



DFCC 3P



Characteristics :
page 4/32

TeSys protection components
Fuse carriers

Operation: safety

The fuse carrier performs two basic functions:
b it isolates the downstream circuit by means of a visible break and wide opening contacts,
b it holds the cartridge fuses designed to protect the installation against short-circuits.
The type of cartridge fuse needed to protect the circuit must be determined before selecting the fuse carrier.

Cartridge fuse selection (type, rating, size)

Type

Application	b Motor protection. b Transformer protection.
Solution	b aM type fuses. These fuses are designed to withstand high current peaks of a very short duration. They must be combined with a thermal overload relay coupled with a contactor.
Application	b Lighting circuit protection. b Supply line protection. b Furnace protection.
Solution	b gG type fuses, which are more widely used but whose limiting capacity is weaker than that of aM type fuses.

Rating

gG fuses
aM fuses

See standard NF C 15-100.
Table 53 A paragraph 532-2-1 and table 52 C paragraph 523-1.

Motors 3 x 220 V		Motors 3 x 400 V		Cartridge fuses type aM		Fuse carrier
P	in	P	in	Size	Rating	
kW	A	kW	A		A	
9	32	15	28.5	10 x 38	32	LS1 D32
11	39	22	44	14 x 51	50	GK1 EK
22	75	37	73	22 x 58	80	GK1 FK
30	103	55	105	22 x 58	125	GK1 FK

Size

Use the “fuse characteristics” table opposite to select the correct fuse size according to:
b the nominal current of the circuit to be protected,
b the operational voltage.

Fuse carrier selection

Application	Isolation of a circuit for safety reasons only.
Solution	The maximum permissible current is indicated in the “pole characteristics” table opposite.
Application	Isolation of a circuit and its protection against short-circuits.
Solution	Select a fuse carrier according to: b the type of cartridge fuse required, b the maximum permissible current in the fuse carrier poles (see “pole characteristics” table opposite). If the operational current is greater than the maximum permissible current in the poles of the fuse carrier corresponding to the cartridge fuse size selected, select the fuse carrier the next size up. The safety provided by using a fuse carrier can be increased by adding a padlocking device with up to three padlocks.

Recommendations for use

The fuse carrier conforms to utilisation category AC-21A/22A of standard IEC 60947-3. It is therefore recommended that the fuse carrier early break auxiliary contacts always be inserted in the coil circuit of the contactor with which it is in series. If the fuse carrier is not associated with a contactor, it is essential to ensure that it will be operated off-load.

Characteristics : page 4/35
References : pages 4/36 and 4/37
Dimensions : page 4/40
Schemes : page 4/41

TeSys protection components
Fuse carriers

Fuse carrier type			LS1 D32	LS1 D323	GK1 Ep	GK1 Fp
Environment						
Conforming to standards	NF EN 60947-3		p		p	p
	IEC 60947-3		p		p	p
			BV, UR		–	–
Protective treatment			"TH"		"TC"	"TC"
Ambient air temperature for operation with links without derating		° C	- 50…+ 70		- 50…+ 70	- 50…+ 70
Maximum tilt in relation to normal vertical mounting plane			± 23°		± 23°	± 23°
Pole characteristics						
Fuse size			10 x 38	10 x 38	14 x 51	22 x 58
Rated operational voltage with links. a.c. supply		V	690	690	690	690
Maximum continuous current at ambient temperature y 40 °C (1) (Min. cable Ø/Ie)						
	With tubular links	mm^2/A	6/32 or 4/25 or 2.5/16	4/25 or 2.5/16	10/50 or 6/40	35/125 or 25/100
	With aM fuses	mm^2/A	6/32 or 4/22 or 2.5/20	4/25 or 2.5/20	10/50 or 6/35	35/125 or 25/100
	With gG fuses	mm^2/A	4/25 or 2.5/20 or 1.5/16	2.5/20 or 1.5/16	10/40 or 6/32	25/100 or 16/80
Early break contact characteristics						
Rated operational voltage		V	a 250. c 60	a 250. c 60	a 500. c 440	a 500. c 220
Conventional thermal current		A	2.5	2.5	6	6
Cartridge fuse characteristics						
Fuse size			10 x 38	10 x 38	14 x 51	22 x 58
	Type aM a 400 V	A	32 (2)	25	50	125
	a 500 V	A	20	20	40	80
	a 660 V	A	–	–	25	50
	Type gG a 400 V	A	25 (2)	25	40	100
	a 500 V	A	25	25	40	80
	a 660 V	A	–	–	25	50
Maximum power dissipated by fuse		W	3	3	8.5	18

Cabling										
Connection by screw clamp terminals or connectors										
Number and c.s.a. of conductors			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
	Solid cable	mm^2	2 x 1	2 x 6	–	–	1 x 2.5	1 x 25	1 x 16	1 x 70
	Flexible cable without cable end	mm^2	2 x 1.5	2 x 6	–	–	1 x 2.5	1 x 25	1 x 16	1 x 50
	Flexible cable with cable end	mm^2	2 x 1	2 x 4	–	–	1 x 2.5	1 x 16	1 x 16	1 x 25
Connection			Screw clamp terminals		–	–	Connector		Connector	
Tightening torque		Nm	1.7		–	–	2		2	
Connection by spring terminals										
Number and c.s.a. of conductors			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
	Solid cable	mm^2	–	–	2 x 1 (3)	2 x 4	–	–	–	–
	Flexible cable without cable end	mm^2	–	–	2 x 1.5 (3)	2 x 4	–	–	–	–

equivalent to $\sqrt{\frac{120 - \text{ambient temperature}}{80}}$

(2) These values are for fuse carriers mounted side by side with a gap of 10 mm between them or mounted with sets of busbars GV2 p54. If mounted side by side without a gap, use the following fuse sizes: aM fuse: 25 A and gG fuse: 20 A.

(3) For cross-sections 1 to 1.5 mm^2, the use of an LA9 D99 cable end reducer is recommended.

Selection : page 4/34 | References : pages 4/36 and 4/37 | Dimensions : page 4/40 | Schemes : page 4/41

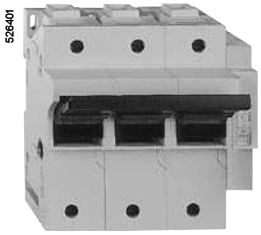
TeSys protection components
Fuse carriers



LS1 D323



LS1 D32



GK1 FK



LS1 D32



+ LA8 D324

3-pole basic blocks

Rating	Cartridge fuse size	Number of early break contacts (1)	Single-phase protection device (2)	Reference (3)	Weight kg
Connection by spring terminals					
25 A	10 x 38	– (4)	Without	LS1 D323	0.270
Connection by screw clamp terminals or connectors					
32 A	10 x 38	– (4)	Without	LS1 D32	0.300
50 A	14 x 51	1	Without	GK1 EK	0.430
			With	GK1 EV	0.470
		2	Without	GK1 ES	0.470
			With	GK1 EW	0.510
125 A	22 x 58	1	Without	GK1 FK	0.860
			With	GK1 FV	0.900
		2	Without	GK1 FS	0.900
			With	GK1 FW	0.940

4-pole basic blocks

Rating	Cartridge fuse size	Number of early break contacts (1)	Single-phase protection device (2)	Reference (3)	Weight kg
Connection by screw clamp terminals or connectors					
32 A	10 x 38	– (4)	Without	LS1 D32 + LA8 D324 (5)	0.300
50 A	14 x 51	1	Without	GK1 EM	0.570
			With	GK1 EY	0.600
		2	Without	GK1 ET	0.610
			With	GK1 EX	0.650
125 A	22 x 58	1	Without	GK1 FM	1.090
			With	GK1 FY	1.130
		2	Without	GK1 FT	1.130
			With	GK1 FX	1.160

Fuse carriers for the North American market

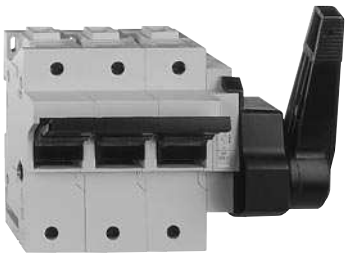
25 and 30 A basic blocks:

(1) With 1 or 2 early break contacts to be inserted in the contactor control circuit.

(3) LS1 D: clips directly onto a 35 mm 5
GK1: clips directly onto a 35 mm 5 rail or Telequick mounting plate.
(4) Addition of add-on contact block, see page 4/37.
(5) Can be mounted on left-hand or right-hand side of the basic block.

Selection : page 4/34 | Characteristics : page 4/35 | Dimensions : page 4/40 | Schemes : page 4/41

TeSys protection components
Fuse carriers
Operators and accessories


526402

GK1 FK + GK1 AP07

Add-on contact blocks

Description	For use on	Mounting	Maximum number	Type of contacts	Sold in lots of	Unit reference	Weight kg
Instantaneous auxiliary contacts (early break contacts)	LS1 D32	Front	1	N/O + N/C	10	GV AE11	0.020
				N/O + N/O	10	GV AE20	0.020
	LS1 D323	Front	1	N/O + N/C	10	GV AE113	0.030
				N/O + N/O	10	GV AE203	0.030

Operators

For fuse carrier		For mounting on	Reference	Weight kg
Rating	Number of poles			
Side handles				
125 A	3 or 4	Right-hand side	GK1 AP07	0.300
		Left-hand side	GK1 AP08	0.300
Front handles (1)				
32 - 50 - 125 A			Fitted as standard	–
External handles				
32 A	3 or 4	Right-hand side	LS1 D32005 (2)	0.200
		Left-hand side	LS1 D32006	0.200
50 A	3 or 4	Right-hand side	GK1 AP05	0.180
		Left-hand side	GK1 AP06	0.180
125 A	3 or 4	Right-hand side	GK1 AP07	0.300
		Left-hand side	GK1 AP08	0.300

Padlocking devices (3)

For fuse carrier			Reference	Weight kg
Rating	Number of poles	Single-phase protection device		
32 A	3 or 4	Without	integral	–
50 A	3	Without	GK1 AV07	0.100
		With	GK1 AV08	0.110
	4	Without	GK1 AV08	0.110
		With	GK1 AV09	0.070

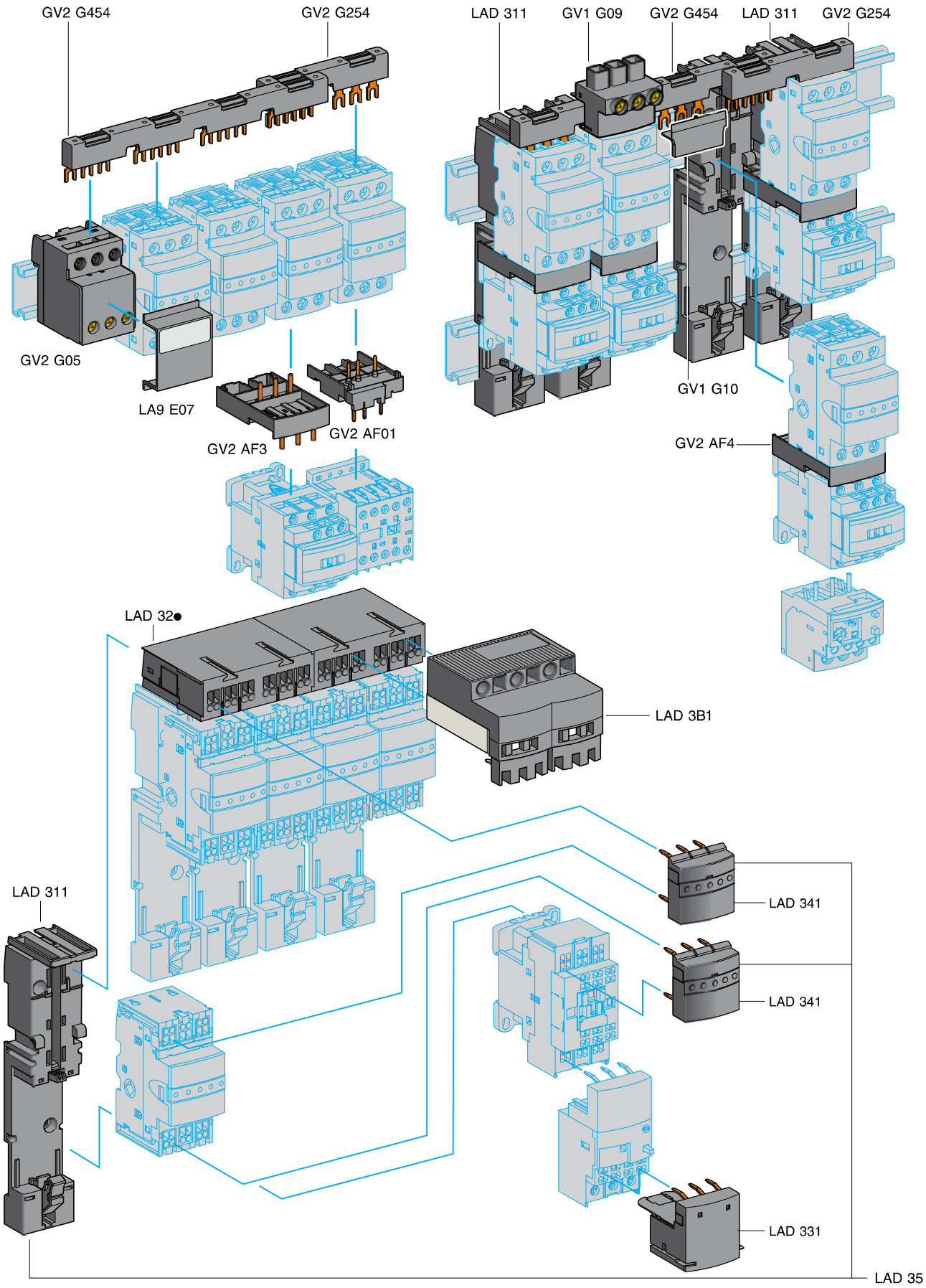
Links

Tubular links

For fuse carrier		Sold in lots of	Unit reference	Weight kg
Rating	Number of poles			
32 A	3 or 4	10	DK1 CB92 (4)	0.007
50 A	3 or 4	10	DK1 EB92 (5)	0.012
125 A	3 or 4	10	DK1 FA92 (5)	0.020

(1) Fitted as standard on 32, 50 and 125 A fuse carriers type GK1.
(2) Reference LS1 D32005 replaces reference DK1 FB005.
(3) For the 125 A rating, use side handles GK1 AP07 or GK1 AP08.
(4) For use on a neutral circuit, the tubular link can be interlocked with special device LA8 D25906 (sold in lots of 10).

Selection : page 4/34 | Characteristics : page 4/35 | Dimensions : page 4/40 | Schemes : page 4/41


GV2 G454
GV2 G254
GV2 G05
LA9 E07
GV2 AF3
GV2 AF01
LAD 311
GV1 G09
GV2 G454
LAD 311
GV2 G254
GV1 G10
GV2 AF4
LAD 32●
LAD 3B1
LAD 311
LAD 341
LAD 341
LAD 331
LAD 35

Accessories for LS1 D32 (screw clamp terminals)

Description	Application	Sold in lots of	Unit reference	Weight kg
Plate for mounting	LS1 D32 and contactor LC1 D09...D38 with front faces aligned	1	LAD 311	0.040
Combination blocks	Between LS1 D32 and contactor LC1 K or LP1 K	10	GV2 AF01	0.020
	Between LS1 D32 and contactor LC1 D09...D38	10	GV2 AF3	0.016
	Between LS1 D32 mounted on LAD 311 and contactor LC1 D09...D38	10	GV2 AF4	0.016

Description	Application	Pitch mm	Reference	Weight kg
Sets of 3-pole 63 A busbars	2 tap-offs	45	GV2 G245	0.036
		54	GV2 G254	0.038
		72	GV2 G272	0.042
	3 tap-offs	45	GV2 G345	0.058
		54	GV2 G354	0.060
	4 tap-offs	45	GV2 G445	0.077
		54	GV2 G454	0.085
		72	GV2 G472	0.094
	5 tap-offs	54	GV2 G554	0.100

Description	Application	Sold in lots of	Unit reference	Weight kg
Protective end cover	For unused busbar outlets	5	GV1 G10	0.005
Terminal block Connection from the top	For supply to one or more GV2 G busbar sets	1	GV1 G09	0.040
Cover for terminal block	For mounting in modular panels	10	LA9 E07	0.005
Padlocking device	For use with up to 4 padlocks (not supplied) Ø 6 mm shank max	1	GV2 V03	0.092

Accessories for LS1 D323 (spring terminals)

Description	Application	Reference	Weight kg
Plate for mounting	LS1 D323 and contactor LC1 D09...D38 with front faces aligned	LAD 311	0.040

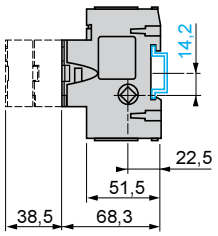
Description	Extension by	Number of starters	Reference	Weight kg
Power splitter box, 63 A	LAD 32p	2	LAD 322	0.120
		3	LAD 323	0.180
		4	LAD 324	0.240

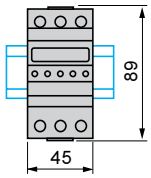
Description	Kit contents	Reference	Weight kg
Assembly and power connection kit for LS1 D323 and LC1 D093...D323	1 LAD 311 plate for mounting LS1 D323 2 LAD 341 power connection modules - between LS1 D323 and power splitter box - between LS1 D323 and contactor	LAD 352	0.078

Description	Maximum capacity	Application	Sold in lots of	Unit reference	Weight kg
Upstream terminal block	16 mm^2	Power supply to 1 or 2 power splitter boxes	1	LAD 3B1	0.212
Downstream terminal block	16 mm^2	Connection of motor cables	1	LAD 331	0.050
Cable end reducer	–	For connection of conductors from 1 to 1.5 mm^2	20	LAD 99	–

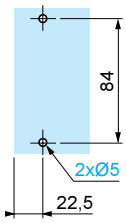
LS1 D32

Mounting on rail AM1 DP200



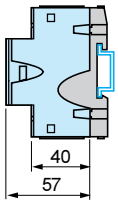


Panel mounting



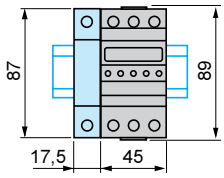
LS1 D32 + LA8 D324

Mounting on rail AM1 DP200

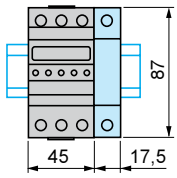


Mounting of 4th pole

On left-hand side

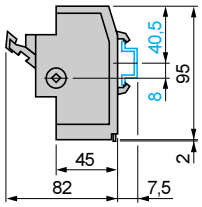


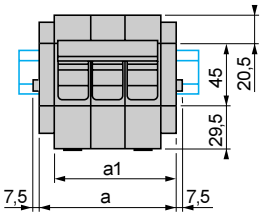
On right-hand side



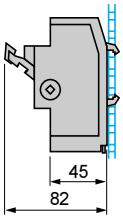
GK1 EK, EM, ES, ET, EV, EW, EX, EY

Mounting on rail AM1 DP200





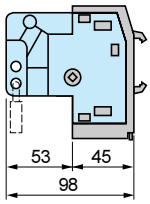
Mounting on pre-slotted plate AM 1P

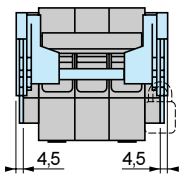


a: with single-phase protection device.
a1: without single-phase protection device.

GK1	a		a1	
	3 P	4 P	3 P	4 P
EK	–	–	88	–
EM	–	–	–	114
ES	–	–	97	–
ET	–	–	–	123
EV	106	–	–	–
EW	115	–	–	–
EX	–	141	–	–
EY	–	132	–	–

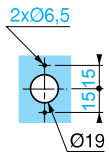
GK1 E + GK1 AV (padlocking device)

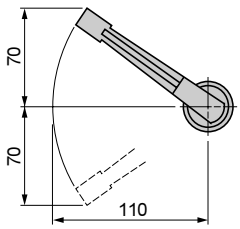


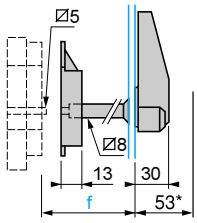


External operator GK1 AP05 right-hand, GK1 AP06 left-hand

Panel cut-out



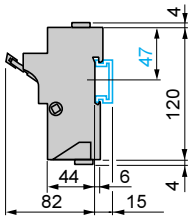


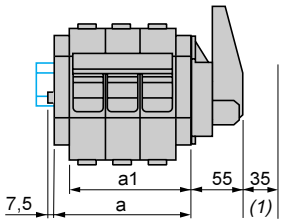


External operator, RH or LH side	f
GK1 EK, EM, ES, ET	29…114
GK1 EV, EW, EX, EY	29…114

GK1 Fp + GK1 AP07 (internal right-hand control)

Mounting on rail AM1 DE or ED

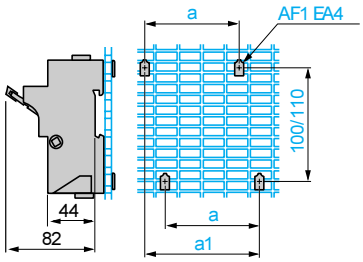




(1) Padlocking device (up to 3 padlocks)

GK1	a		a1	
	3 P	4 P	3 P	4 P
FK	–	–	121	–
FM	–	–	–	156
FS	–	–	136	–
FT	–	–	–	171
FV	136	–	–	–
FW	151	–	–	–
FX	–	186	–	–
FY	–	171	–	–

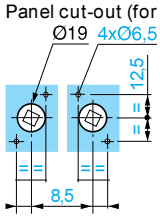
Mounting on pre-slotted plate AM1PA

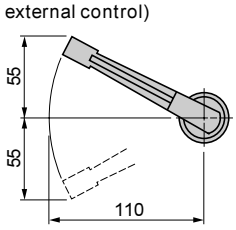


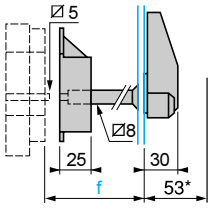
GK1	a		a1	
	3 P	4 P	3 P	4 P
Fp	70	105	96	131

Internal or external control GK1 AP07 RH, AP08LH

Panel cut-out (for external control)







External operator, RH or LH side	f
GK1 FK, FM, FS, FT	35…114
GK1 FV, FW, FX, FY	35…114

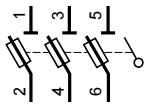
Selection : page 4/34
Characteristics : page 4/35
References : pages 4/36 and 4/37
Schemes : page 4/41

TeSys protection components
Fuse carriers

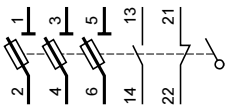
Fuse carriers without single-phase protection device

3-pole

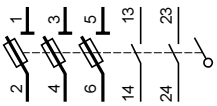
LS1 D32, D323



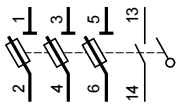
LS1 D32, D323 + GV AE11p



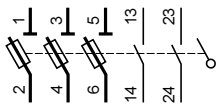
LS1 D32, D323 + GV AE20p



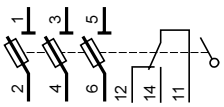
GK1 EK



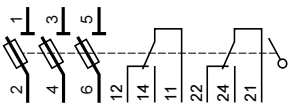
GK1 ES



GK1 FK

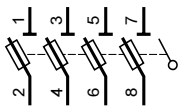


GK1 FS



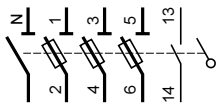
4-pole

LS1 D32 + LA8 D324

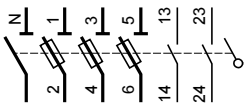


3-pole + Neutral

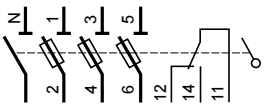
GK1 EM



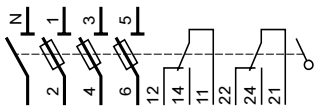
GK1 ET



GK1 FM



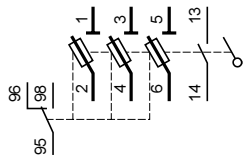
GK1 FT



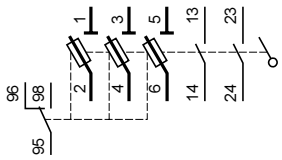
Fuse carriers with single-phase protection device

3-pole

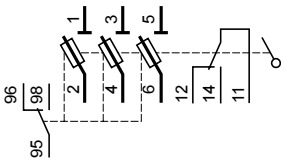
GK1 EV



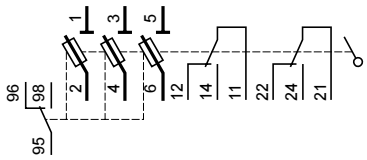
GK1 EW



GK1 FV

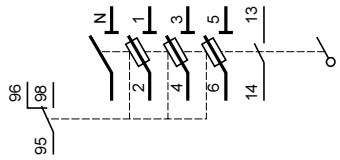


GK1 FW

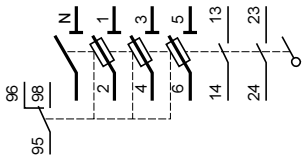


3-pole + Neutral

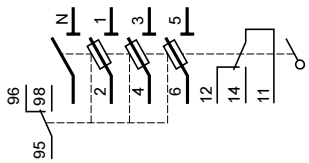
GK1 EY



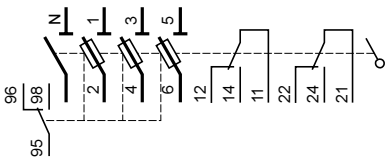
GK1 EX



GK1 FY



GK1 FX



4

TeSys protection components
TeSys GS switch-disconnector-fuses, 32 to 1250 A

Applications	TeSys GS switch-disconnector-fuses provide on-load breaking and making, safe isolation and They are used, in particular, on the incoming supply to control panels, for protecting and switching They provide simultaneous disconnection, together with all the other associated functions such as





Fuse type	NF C or DIN									
Rated thermal current (Ith)	32 A	50 A	63 A	100 A	125 A	160 A	250 A	400 A	630 A	1250 A
Number of poles	3 or 3 + Nc	3 or 4								
Fuse size	10 x 38	14 x 51	T00C	22 x 58	22 x 58 T00	T0 T00	T1	T2	T3	T4
External operator, padlockable and lockable	Front and RH side LH side									
Direct operator, padlockable	Front	RH side							Front	
Rated operational voltage (Ue)	690 V									
Rated operational current (Ie) at 400 V, AC-23 A	32 A	50 A	63 A	100 A	125 A	160 A	250 A	400 A	630 A	1000 A
Rated making capacity at 400 V, AC-23B	320 A	500 A	630 A	1000 A	1250 A	1600 A	2500 A	4000 A	6300 A	10 000 A
Rated breaking capacity at 400 V, AC-23B	256 A	400 A	500 A	800 A	1000 A	1280 A	2000 A	3200 A	5040 A	8000 A
Rated conditional short-circuit current at 400 V, with gG (gl) fuses	100 kA	100 kA	100 kA	100 kA	100 kA	100 kA	100 kA	50 kA	100 kA	100 kA
Switch-disconnector-fuse type references	GS1 DD	GSp F	GSp G	GSp J	GSp K or KK	GSp L or LL	GSp N	GSp QQ	GS2 S	GS2 V
Pages	4/53									

overcurrent protection.
off main circuits (including Emergency stop).
padlocking and interlocking.
provide the same disconnect and protection functions on the incoming supply of equipment, generators or starters, including motors.







BS											
32 A	32 A	63 A	100 A	160 A	200 A	250 A	315 A	400 A	630 A	800 A	1250 A
3 or 3 + Nc	3 or 4										
A1	A1	A2-A3	A4 Ø y 31 mm	A4 B1-B2	B1-B2	B1…B3	B1…B3	B1…B4	C1-C2	C1…C3	D1
Front and RH side											
Front	–								Front		
690 V											
32 A	32 A	63 A	100 A	160 A	200 A	250 A	315 A	400 A	630 A	800 A	1000 A
320 A	320 A	630 A	1000 A	1600 A	2000 A	2500 A	3150 A	4000 A	6300 A	8000 A	10 000 A
256 A	256 A	500 A	800 A	1280 A	1600 A	2000 A	2520 A	3200 A	5040 A	6400 A	8000 A
80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA
GS1 DDB	GS2 DB	GS2 GB	GS2 JB	GS2 LB or LLB	GS2 MMB	GS2 NB	GS2 PPB	GS2 QQB	GS2 SB	GS2 TB	GS2 VB
4/55											

TeSys protection components
Switch-disconnector-fuses
32 to 1250 A, TeSys GS



GS1 DD3



GS2 N3
+ handle GS2 AH540



GS2 S3
+ handle GS2 AH550

Presentation

TeSys GS switch-disconnector-fuses provide on-load breaking or making, safe isolation and overcurrent protection of all low voltage electrical circuits.

They are used, in particular, on the incoming supply to control panels, for protecting and switching off main circuits (including Emergency stop).

equipment to provide the same disconnect and protection functions on the incoming supply of equipment, generators or motor starters.

Conforming to standard IEC 60947-3, TeSys GS switch-disconnector-fuses are available for use with:
b NFC or DIN fuses,
b BS fuses.

meeting the requirements of standards UL98 and CSA 22.2 Nr.4, is also available.

The TeSys GS range includes sturdy and compact handles. These handles are easy to install and operate and are available in the following options:
b Direct operator.
b External front and RH side-mounted operator.
b External LH side-mounted operator.
b Padlockable with up to 3 padlocks. The door is locked when the handle is padlocked.
b Locking by means of a key-operated lock (option).
b With door interlock in the “closed” position. When in the “Closed” position, the door can be opened by means of a tool to be used only by authorised personnel. Locking is automatically re-established when the door is closed.
b Black/Grey or Yellow/Red for the Emergency stop function.
b IP 65 or IP 55.

This range is completed by auxiliary contacts:
b
and common to all ratings.
b Auxiliary contacts GS1 AN, which are suitable for isolation.
Reversibility of these contacts to convert an N/C contact into an N/O contact and vice versa.
b Control circuit test facility, off-load, with auxiliary contacts GS1 AM110, GS1 AM101 or GS1 ANT, used in conjunction with handles GS2 AHT.
b Auxiliary “blown fuse” signalling contacts.

Functions

Breaking

b Quick break and quick tripping mechanism, independent of the fuses.
C Opening and closing independent of operator speed.
C On-load making and breaking of resistive, inductive or mixed resistive and inductive circuits.
C Quality and durability of mechanical and electrical lives.

b Utilisation categories AC-23/690 V and DC-23/440 V.
C Durable performance in severe duty applications.
C Direct control of motors.

Characteristics: pages 4/46 to 4/51
References: pages 4/52 to 4/57
Dimensions: pages 4/62 to 4/66
Schemes: page 4/67

TeSys protection components
Switch-disconnector-fuses
32 to 1250 A, TeSys GS

Functions (continued)

Isolation

b Upstream and downstream breaking of fuses for all ratings
C Double break isolation of the power circuit and safe replacement of fuses.
C Total isolation of power and control circuits to ensure safety of persons and equipment.

b GS1 AN auxiliary contacts.
C Control circuit isolation.

b Contacts forced open in the event of welding.
C Fully visible break. “Open” position cannot be indicated unless all contacts are actually open.
C Safe opening and clear indication of “Open” state of switch-disconnector.

b Visible isolation distance between the open contacts.
C Visible break (630 to 1250 A ratings).

Protection

b Addition of gG (gl) fuses.
b C Overload and short-circuit protection of distribution circuits and power switching

b Addition of aM fuses (associated with thermal overload relays).
C Type 2 coordination (Iq > 50 kA) for motor starters consisting of fuses, contactors, relays.
C Short-circuit protection of motors and equipment.

b Addition of quick-blow fuses.
C Protection of electronic variable speed controllers and soft starters.

b “Blown fuse” detection device.
C Protection against single-phasing.

b Conditional short-circuit withstand voltage of 100 kA for all ratings.
C Equivalence between the breaking capacity of the fuses and the ability of the switch-disconnector-fuse to withstand this maximum capacity.
C Use in installations where very high short-circuit currents can develop.

b Handles with padlocking facility, with door interlock.
b Handle locking by means of a key-operated lock (option).
b Door interlock in “Closed” position.
b Operator shafts padlockable with door open.
b
C Protection against accidental contact.
C Protection of persons.

b IP 20 protection with terminal shrouds

Information and testing

b Up to 12 auxiliary contacts.
C Early break, “Open” and “Closed” position signalling, and “blown fuse” signalling.
C Use in automation systems.

b Control circuit test facility, off-load, by using auxiliary contacts GS1 AM110, GS1 AM101 or GS1 ANT in conjunction with handles GS2 AHT.
In the “Test” position, the enclosure door can be opened.

TeSys protection components
TeSys GS switch-disconnector-fuses, 32 to 1250 A, for use with NF C or DIN fuses

Type				GS1 DD	GSp F	GSp G	GSp J
Switch-disconnector-fuse characteristics							
Environment							
Conforming to standards	Switch-disconnector-fuses			IEC 60947-3			
	Circuit-breakers			IEC 60269-1 and 2			
				ASEFA/LOVAG, LROS (pending)			
Degree of protection conforming to IEC 60529	With terminal covers			IP 20			
Ambient air temperature around the device	Storage		°C	- 40…+ 80			
	Operation		°C	- 20…+ 70			
Flame resistance conforming to IEC 60695-2-1	Body		°C	960	960		
	Fuse cover		°C	–	850		
Pole characteristics							
Conventional thermal current (Ith) for ambient temperature y 40 °C			A	32	50	63	100
Fuse size				10 x 38	14 x 51	T00C	22 x 58
Rated insulation voltage (Ui)			V	800	750	750	750
Rated impulse withstand voltage (Uimp)			kV	8	8	8	8
Rated operational current (Ie)	Cat. AC-23A/B (1)	a 400 V	A	32	50	63	100
		a 500 V	A	32	50	63	100
		a 690 V	A	32	50	63	100 (3)
	Cat. DC-23A/B (1)	c 440 V (2)	A	20	40	40	100
Rated operational power	Cat. AC-23A/B (1)	a 400 V	kW	15	25	30	51
		a 500 V	kW	18.5	33	40	63
		a 690 V	kW	25	45	55	90
Rated conditional short-circuit current	I rms at a 400 V with protection by gG (gl) fuses		kA	100	100	100	100
	Rating of associated fuses		A	32	50	63	100
Peak value of permissible current (dynamic short-circuit withstand)	Conforming to IEC 60269-1	a 400 V	kA	5.5	7.6	10.6	20
Rated making capacity	I rms at 400 V Cat. AC-23B		A	320	500	630	1000
Rated breaking capacity	I rms at 400 V Cat. AC-23B		A	256	400	500	800
Mechanical durability	Number of operating cycles			20 000	10 000	10 000	10 000
Electrical durability	Number of operating cycles cat. AC/DC-23A/B (1)			1500/300	1500/300	1500/300	1500/300
Cabling	Cable (c.s.a. min/max)		mm^2	2.5/16	6/25	10/25	25/95
	Bars (max width)		mm	–	–	–	20
Tightening torque			N.m	3	3.2	3.2	12

(1) Category “A”: frequent operating cycles, category “B”: infrequent operating cycles
(2) 2 poles in series per phase.
(3) With terminal covers.
(4) Poles not juxtaposed.

Presentation: pages 4/44 and 4/45
References: pages 4/52 to 4/57
Dimensions: pages 4/62 to 4/66
Schemes: page 4/67

GSp K	GSp KK	GSp LL	GSp L	GSp N	GSp QQ	GS2 S	GS2 V
IEC 60947-3							
IEC 60269-1 and 2							
ASEFA/LOVAG, LROS (pending)							
IP 20							
- 40…+ 80							
- 20…+ 70							
960							
850							
125	125	160	160	250	400	630	1250
22 x 58	T00	T00	T0	T1	T2	T3	T4
750	750	750	750	750	800	1000	1000
8	8	8	8	8	8	12	12
125	125	160	160	250	400	630	1000
125	125	160	160	250	315	500	800
100 (3)	100 (3)	125 (3)	125 (3)	250 (3)	250/315	315/400	630
100	100	125	125	200	200/315 (4)	400/630 (4)	1000
63	63	80	80	132	220	355	560
90	90	110	110	160	220	355	560
80	80	110	110	220	220/295	295/400	400/475
100	100	100 (50)	100	100	50	100	100
125	125	125 (160)	160	250	400	630	1250
20	20	22.7	20	32.5	40	70	90
1250	1250	1600	1600	2500	4000	6300	10 000
1000	1000	1280	1280	2000	3200	5040	8000
10 000	10 000	10 000	10 000	10 000	10 000	8000	5000
1000/200	1000/200	1000/200	1000/200	1000/200	1000/200	1000/200	500/100
35/95	35/95	50/95	50/95	95/240	185/240	2 x 150 / 2 x 300	– / 4 x 185
20	20	20	20	32	45	63	80
12	12	12	12	25	25	44	44

Presentation: pages 4/44 and 4/45
References: pages 4/52 to 4/57
Dimensions: pages 4/62 to 4/66
Schemes: page 4/67

TeSys protection components
TeSys GS switch-disconnector-fuses, 32 to 1250 A, for use with BS fuses

Type				GS1 DDB	GS2 DB	GS2 GB	GS2 JB
Switch-disconnector-fuse characteristics							
Environment							
Conforming to standards	Switch-disconnector-fuses			IEC 60947-3			
	Circuit-breakers			IEC 60269-1 and 2			
				ASEFA/LOVAG, LROS (pending)			
Degree of protection conforming to IEC 60529	With terminal covers			IP 20			
Ambient air temperature around the device	Storage		°C	- 40…+ 80			
	Operation		°C	- 20…+ 70			
Flame resistance conforming to IEC 60695-2-1	Body		°C	960			
	Fuse cover		°C	–		850	
Pole characteristics							
Conventional thermal current (Ith) for ambient temperature y 40 °C			A	32	32	63	100
Fuse size				A1	A1	A2-A3	A4 Ø y 31 mm
Rated insulation voltage (Ui)			V	800	750	750	750
Rated impulse withstand voltage (Uimp)			kV	8	8	8	8
Rated operational current (Ie)	Cat. AC-23A/B (1)	a 400 V	A	32	32	63	100
		a 500 V	A	32	32	63	100
		a 690 V	A	32	32	63	100 (4)
	Cat. DC-23A/B (1)	c 440 V (2)	A	20	20	40	100
Rated operational power	Cat. AC-23A/B (1)	a 400 V	kW	15	15	30	51
		a 500 V	kW	18.5	18.5	40	63
		a 690 V	kW	25	25	55	90
Rated conditional short-circuit current	I rms at a 400 V with protection by gG (gl) fuses		kA	80	80	80	80
	Rating of associated fuses		A	32	32	63	100
Peak value of permissible current (dynamic short-circuit withstand)	Conforming to IEC 60269-1	a 400 V	kA	5.5	9	10.6	20
Rated making capacity	I rms at 400 V Cat. AC-23B		A	320	320	630	1000
Rated breaking capacity	I rms at 400 V Cat. AC-23B		A	256	256	500	800
Mechanical durability	Number of operating cycles			20 000	10 000	10 000	10 000
Electrical durability	Number of operating cycles cat. AC/DC-23A/B (1)			1500/300	1500/300	1500/300	1500/300
Cabling	Cable (c.s.a. min/max)		mm^2	2.5/16	6/25	10/25	25/95
	Bars (max width)		mm	–	–	–	20
Tightening torque			N.m	3	3.2	3.2	12

(1) Category “A”: frequent operating cycles, category “B”: infrequent operating cycles
(2) 2 poles in series per phase.
(3) Fit switch-disconnector-fuses GS2 LB with B1 or B2 fuses and GS2 LLB with A4 fuses.
(4) With terminal covers.
(5) Poles not juxtaposed.

Presentation: pages 4/44 and 4/45
References: pages 4/52 to 4/57
Dimensions: pages 4/62 to 4/66
Schemes: page 4/67

GS2 LB or LLB (3)	GS2 MMB	GS2 NB	GS2 PPB	GS2 QQB	GS2 SB	GS2 TB	GS2 VB
IEC 60947-3							
IEC 60269-1 and 2							
ASEFA/LOVAG, LROS (pending)							
IP 20							
- 40…+ 80							
- 20…+ 70							
960							
850							
160	200	250	315	400	630	800	1250
A4. B1-B2 (3)	B1-B2	B1…B3	B1…B3	B1…B4	C1-C2	C1…C3	D1
750	750	750	800	800	1000	1000	1000
8	8	8	8	8	12	12	12
160	200	250	315	400	630	800	1000
160	200	250	315	315	500	630	800
125 (4)	200/160 (4)	250 (4)	250/315 (4)	250/315	315/400	630	630
125	200	200	200	200/315 (5)	400/630 (5)	800	1000
80	100	132	150	220	355	450	560
110	140	160	220	220	355	450	560
110	150/185	220	220/295	220/295	295/400	400	400/475
80	80	80	80	80	80	80	80
160	200	250	315	400	630	800	1250
22.7	32.5	32.5	40	40	70	80	90
1600	2000	2500	3150	4000	6300	8000	10 000
1280	1600	2000	2520	3200	5040	6400	8000
10 000	10 000	10 000	10 000	10 000	8000	8000	5000
1000/200	1000/200	1000/200	1000/200	1000/200	1000/200	500/100	500/100
50/95	95/240	95/240	185/240	185/240	2 x 150 / 2 x 300	2 x 185 / 2 x 300	– / 4 x 185
20	32	32	45	45	63	63	80
12	25	25	25	25	44	44	44

TeSys protection components
Auxiliary contacts for TeSys GS switch-disconnector-fuses, 32 to 1250 A, for use with NF C or DIN fuses

GS1 AMp11, GS1 AM1 and GS1 AM2 early break and signalling contact characteristics

Conventional thermal current (Ith) for ambient temperature y 40 °C		A	16
Rated operational current (Ie)	Cat. AC-15	A	
	Cat. DC-13	A	
Durability	Number of operating cycles		Mechanical: 1 000 000 Electrical: cat. AC-15: 30 000
Fuse protection	gG	A	6 max
Cabling		mm	Faston connectors: 1 x 6.35 or 2 x 2.8

GS1 AN and GS1 ANT signalling contact characteristics

Conventional thermal current (Ith) for ambient temperature y 40 °C		A	20
Rated operational current (Ie)	Cat. AC-15	A	
	Cat. DC-13	A	
Durability	Number of operating cycles		Mechanical: 30 000 Electrical: cat. AC-15: 30 000
Fuse protection	gG	A	16 max
Cabling	Cable (c.s.a. min/max)	mm^2	

GS1 AM110 and GS1 AM101 early break and signalling contact characteristics

Conventional thermal current (Ith) for ambient temperature y 40 °C		A	10
Rated operational current (Ie)	Cat. AC-15	A	
	Cat. DC-13	A	
Durability	Number of operating cycles		Mechanical: 5 000 000 Electrical: cat. AC-15: 1 000 000
Cabling	Cable (c.s.a. min/max)	mm^2	

GSp AF "blown fuse" signalling contact characteristics

Conventional thermal current (Ith) for ambient temperature y 40 °C		A	16
Rated operational current (Ie)	Cat. AC-15	A	
	Cat. DC-13	A	
Durability	Number of operating cycles		Mechanical: 30 000 Electrical: cat. AC-15: 30 000
Cabling		mm	Faston connectors: 1 x 6.35