

Modular relays with forcibly guided contacts 6 - 10 A



Chemical and
petrolchemical



Hoists and cranes



Wood-
processing
machines



Carousel
warehouses



Escalators



Elevators
and lifts



Process
Industry



Automatic
car-washes



Modular relays with forcibly guided contacts

Type 7S.12/32

- 2 pole 6 A (1 NO + 1 NC)

Type 7S.14/34

- 4 pole 6 A (2 NO + 2 NC and 3 NO + 1 NC)

Type 7S.16/36

- 6 pole 6 A (4 NO + 2 NC and 5 NO + 1 NC)

- For safety applications, with class A forcibly guided contact relays EN 61810-3 (previously EN 50205)
- SIL2 evaluated according to EN 61508, for use in functional safety application according to EN 62061 up to SIL2 and according to IEC 13849-1 up to PL d (instead of For functional reliability in machinery and plant engineering according to EN 13849-1)
- For functional reliability in machinery and plant engineering according to EN 13849-1
- Railways application versions available
- DC and AC supply versions
- Coil status visual indication with LED
- 35 mm rail (EN 60715) mount

7S.12/32...5110



- 2 pole (1 NO + 1 NC)

7S.14/34...4xx0



- 4 pole :
(2 NO + 2 NC) type
7S.xx.x.xxx.4220
(3 NO + 1 NC) type
7S.xx.x.xxx.4310

7S.16/36...5xx0



- 6 pole:
(4 NO + 2 NC) type
7S.xx.x.xxx.5420
(5 NO + 1 NC) type
7S.xx.x.xxx.5510

Screwless terminal



Screw terminal



For outline drawing see page 12

Contact specification

Contact configuration		1 NO + 1 NC	2 NO + 2 NC, 3 NO + 1 NC	4 NO + 2 NC, 5 NO + 1 NC
Rated current/Max. peak current	A	6/15	6/15	6/15
Rated switching voltage	V AC (50/60 Hz)	250	250	250
Rated load AC1	VA	1500	1500	1500
Rated current AC15 (230 V AC)	A	5	5	5
Rated current AC15 (400 V AC)	A	2	—	—
Breaking capacity DC1: 24/110/220 V	A	6/0.6/0.2	6/0.9/0.3	6/0.9/0.3
Breaking capacity DC13: 24 V	A	1	3	3
Minimum switching load	mW (V/mA)	60 (5/5)	60 (5/10)	60 (5/10)
Standard contact material		AgNi + Au	AgSnO ₂	AgSnO ₂ +Au

Coil specification

Nominal voltage (U _N)	V AC (50/60 Hz)	110...125 - 230...240	110...125 - 230...240	110...125 - 230...240
	V DC	12 - 24	12 - 24 - 110	12 - 24 - 110
Rated power	VA (50 Hz)/W	2.3/1	2.3/1	2.3/1
Operating range	AC	(0.85...1.1)U _N	(0.85...1.1)U _N	(0.85...1.1)U _N
	DC	(0.8...1.2)U _N	(0.8...1.2)U _N	(0.8...1.2)U _N
	DC (24 and 110 V only)	(0.7...1.25)U _N	(0.7...1.25)U _N	(0.7...1.25)U _N
Holding voltage	AC/DC	0.45 U _N / 0.45 U _N	0.55 U _N / 0.55 U _N	0.55 U _N / 0.55 U _N
Must drop-out voltage	AC/DC	0.1 U _N / 0.1 U _N	0.1 U _N / 0.1 U _N	0.1 U _N / 0.1 U _N

Technical data

Mechanical life	cycles	10 · 10 ⁶	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³	100 · 10 ³
Operate/release time	ms	7/11	12/10	12/10
Insulation between coil and contacts (1.2/50 μs)	kV	6	6	6
Dielectric strength between open contacts	V AC	1500	1500	1500
Ambient temperature	°C	-40...+70	-40...+70	-40...+70
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



Modular relays with forcibly guided contacts**Type 7S.23**

- 3 pole (2 NO + 1 NC)






- For safety applications, with class A forcibly guided contact relays EN 61810-3 (previously EN 50205)
- SIL2 evaluated according to EN 61508, for use in functional safety application according to EN 62061 up to SIL2 and according to IEC 13849-1 up to PL d (instead of For functional reliability in machinery and plant engineering according to EN 13849-1)
- For functional reliability in machinery and plant engineering according to EN 13849-1
- DC coil
- Cadmium free contacts
- 17.5 mm wide
- Coil status visual indication with LED
- 35 mm rail (EN 60715) mount

Screw terminal

**7S.23**

- 3 pole (2 NO + 1 NC)

For outline drawing see page 12

Contact specification		
Contact configuration		2 NO + 1 NC
Rated current/Max. peak current	A	10/20
Rated switching voltage	V AC (50/60 Hz)	250
Rated load AC1	VA	2500
Rated current AC15 (230 V AC)	A	5
Breaking capacity DC1: 24/110/220 V	A	10/0.6/0.3
Breaking capacity DC13: 24 V	A	5
Minimum switching load	mW (V/mA)	60 (5/5)
Standard contact material		AgNi + Au
Coil specification		
Nominal voltage (U _N)	V DC	12 - 24 - 48 - 110
Rated power	W	1
Operating range	DC	(0.8...1.2)U _N
Holding voltage	DC	0.45 U _N
Must drop-out voltage	DC	0.1 U _N
Technical data		
Mechanical life	cycles	10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³
Operate/release time	ms	7/11
Insulation between coil and contacts (1.2/50 μs)	kV	6
Dielectric strength between open contacts	V AC	1500
Ambient temperature	°C	-40...+70
Protection category		IP 20
Approvals (according to type)		    

Modular relays with forcibly guided contacts for SIL3 safety applications

Type 7S.43/63

- 2 NO safety contacts
- 1 NC feedback contact
- 1 auxiliary signalling contact
- For safety application, with class A forcibly guided contact relays EN 61810-3 (previously EN 50205) for safety application up to SIL 3
- SIL 3 evaluated according to EN 61508, for use in functional safety application according to EN 62061 up to SIL 3 and according to IEC 13849-1 up to PL e
- Double channel architecture (1oo2) with 2 NO contact, 1 feedback contact and 1 auxiliary contact
- From 12 up to 110 V DC version with operating range $(0.85 \dots 1.1)U_N$
- DC coil
- Coil status visual indication with LED
- 35 mm rail (EN 60715) mount

Screwless terminal

Screw terminal



For outline drawing see page 12

Contact specification

Contact configuration		2 NO + 1 NC + 1 AUX
Rated current/Max. peak current	A	6/15
Rated switching voltage	V AC (50/60 Hz)	250
Rated load AC1	VA	1500
Rated current AC15 (230 V AC)	A	5
Breaking capacity DC1: 24/110/220 V	A	6/0.6/0.2
Breaking capacity DC13: 24 V	A	3
Minimum switching load	mW (V/mA)	60 (5/10)
Standard contact material		AgSnO ₂ & AgNi+Au

Coil specification

Nominal voltage (U _N)	V DC	12 - 24 - 48 - 110
Rated power	W	1.7
Operating range	DC	$(0.85 \dots 1.1)U_N$
Holding voltage	DC	0.55 U _N
Must drop-out voltage	DC	0.1 U _N

Technical data

Mechanical life	cycles	10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³
Operate/release time of NO contacts	ms	10/7
Operate/release time of NC contacts	ms	5/30
Insulation between coil and contacts (1.2/50 μs)	kV	6
Dielectric strength between open contacts	V AC	1500
Ambient temperature	°C	-40...+70
Protection category		IP 20

Approvals (according to type)

7S.43/63...0211



- 3 pole (2 NO + 1 NC)
- 1 auxiliary contact



Ordering information

Example: 7S series Modular relay with forcibly guided contacts, 6 contact (4 NO + 2 NC) 6 A, supply voltage 24 V DC.

7 S . 1 6 . 9 . 0 2 4 . 5 4 2 0

Series

Type

- 1 = 22.5 mm wide, screwless terminals
- 2 = 17.5 mm wide, screw terminals
- 3 = 22.5 mm wide, screw terminals
- 4 = 22.5 mm wide, screwless terminals
- 6 = 22.5 mm wide, screw terminals

Output

- 2 = 2 contacts
- 3 = 3 contacts
- 4 = 4 contacts
- 6 = 6 contacts

Supply version

- 8 = AC (50 /60 Hz)
- 9 = DC

Supply voltage

See page 10

T= Railways application version

Special versions

- 0 = Standard
- 1 = NO auxiliary contact

NO and NC contacts

- 11 = 1 NO + 1 NC (SPST-NO + SPST-NC)
- 21 = 2 NO + 1 NC (DPST-NO+SPST-NC)
- 22 = 2 NO + 2 NC (DPST-NO + DPST-NC)
- 31 = 3 NO + 1 NC (3PST-NO + SPST-NC)
- 42 = 4 NO + 2 NC (4PST-NO + DPST-NC)
- 51 = 5 NO + 1 NC (4PST-NO + SPST-NC)

Contact material

- 0 = AgNi +Au (7S.23) only
- 0 = AgSnO₂ & AgNi + Au (7S.43/63) only
- 4 = AgSnO₂ (7S.14/34) only
- 5 = AgNi +Au (7S.12/32) only
- 5 = AgSnO₂ + Au (7S.16/36) only

Codes, Preferred selections for best availability are shown in **bold**.

7S.12.9.012.5110	7S.14.9.012.4220	7S.16.9.012.5420
7S.12.9.024.5110	7S.14.9.012.4310	7S.16.9.024.5420
7S.12.8.120.5110	7S.14.9.024.4220	7S.16.9.024.5510
7S.12.8.230.5110	7S.14.9.024.4310	7S.16.9.110.5420
	7S.14.9.110.4220	7S.16.8.120.5420
7S.32.9.012.5110	7S.14.9.110.4310	7S.16.8.230.5420
7S.32.9.024.5110	7S.14.8.120.4220	
7S.32.8.120.5110	7S.14.8.120.4310	7S.36.9.012.5420
7S.32.8.230.5110	7S.14.8.230.4220	7S.36.9.024.5420
	7S.14.8.230.4310	7S.36.9.024.5510
7S.43.9.012.0211		7S.36.9.110.5420
7S.43.9.024.0211	7S.34.9.012.4220	7S.36.8.120.5420
7S.43.9.048.0211	7S.34.9.012.4310	7S.36.8.230.5420
7S.43.9.110.0211	7S.34.9.024.4220	
	7S.34.9.024.4310	7S.23.9.012.0210
7S.63.9.012.0211	7S.34.9.110.4220	7S.23.9.024.0210
7S.63.9.024.0211	7S.34.9.110.4310	7S.23.9.048.0210
7S.63.9.048.0211	7S.34.8.120.4220	7S.23.9.110.0210
7S.63.9.110.0211	7S.34.8.120.4310	
	7S.34.8.230.4220	
	7S.34.8.230.4310	

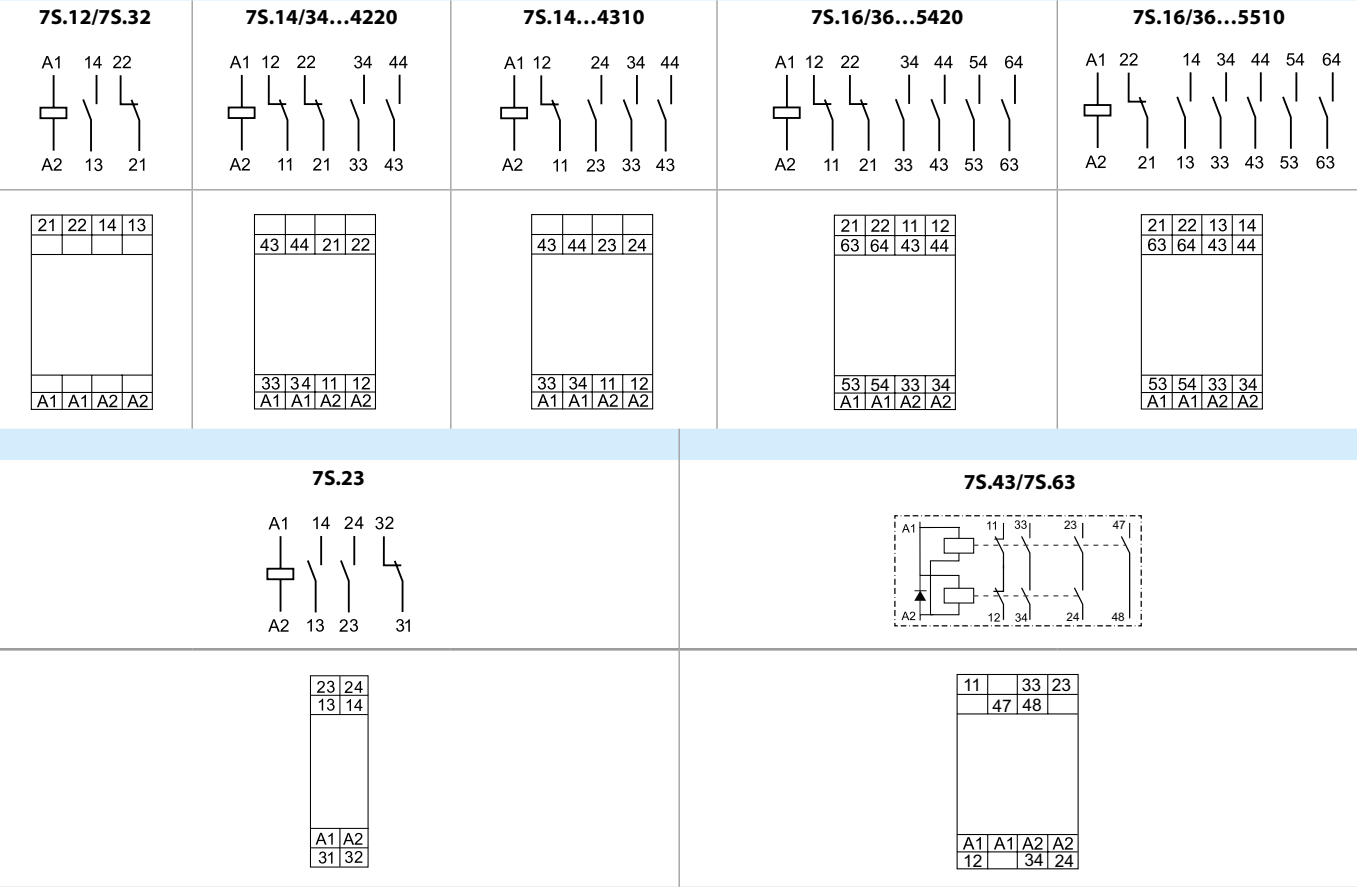
Technical data

Insulation according to EN 61810-1		
Nominal voltage of supply system	V AC	230/400
Rated insulation voltage	V AC	250
Pollution degree		2
Insulation between coil and contact set		
Type of Insulation		Reinforced
Overtoltage category		III
Rated impulse voltage	kV (1.2/50 μs)	6
Dielectric strength	V AC	4000
Insulation between adjacent contacts		
Type of Insulation		Basic
Overtoltage category		III
Rated impulse voltage	kV (1.2/50 μs)	4
Dielectric strength	V AC	2500
Insulation between open contacts		
Type of disconnection		Micro-disconnection
Dielectric strength	V AC/kV (1.2/50 μs)	1500/2.5

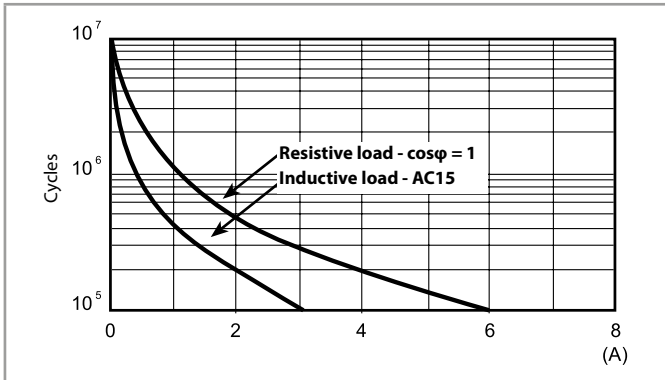
Insulation between coil terminals						
Rated impulse voltage (surge) differential mode (according to EN 61000-4-5)	kV (1.2/50 μs)	1.5				
Terminals		Screw Terminal		Screwless Terminal		
Min. wire size		solid cable	stranded cable	solid cable	stranded cable	
	mm ²	0.5	0.5	0.5	0.5	
	AWG	21	21	21	21	
		Screw Terminal		Screwless Terminal		
Max. wire size		solid cable	stranded cable	solid cable	stranded cable	
	mm ²	1 x 6 / 2 x 2.5	1 x 4 / 2 x 2.5	1 x 1.5	1 x 1.5	
	AWG	1 x 10 / 2 x 14	1 x 12 / 2 x 14	1 x 14	1 x 16	
Wire strip length	mm	9				
Other data		7S.12/32	7S.14/34	7S.16/36	7S.23	7S.43/63
Bounce time: NO/NC	ms	2/8	2/10	2/10	2/15	1/8
Vibration resistance (10...200)Hz: NO/NC	g	10/5	20/6	20/6	10/2	10/2
Shock resistance: NO/NC	g	20/6	20/5	20/5	20/6	20/5
Power lost to the environment	without contact current	W	0.8	0.8	0.8	1.7
	with rated current	W	1.4	2.3	2.8	3.8

Contact specifications

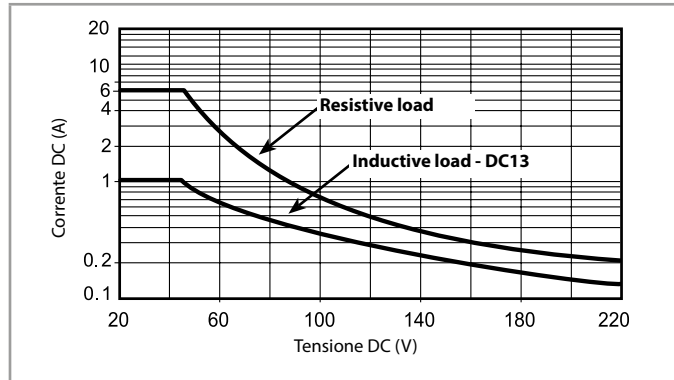
Contact diagrams



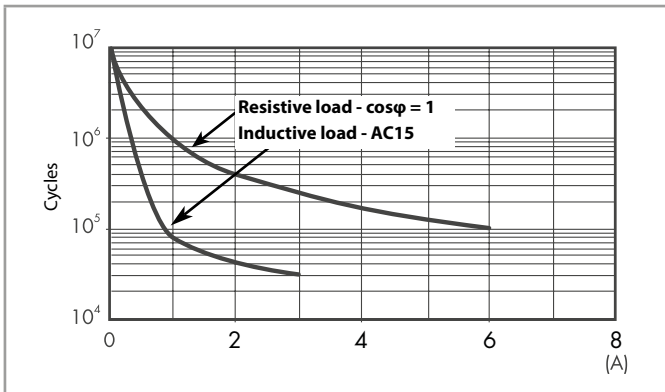
F 7S12 - Electrical life (AC) v contact current - 7S.12



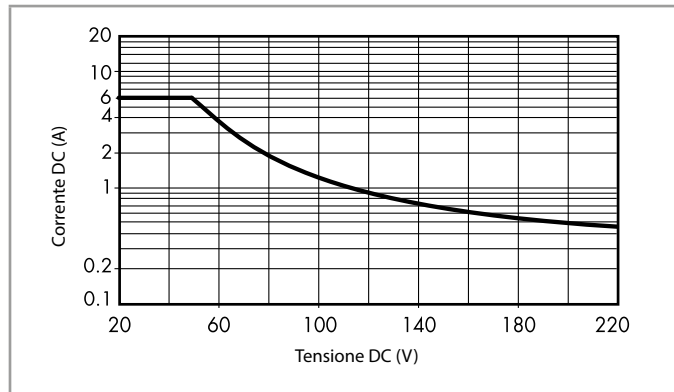
H 7S12* - Maximum DC breaking capacity - 7S.12



F 7S14 - Electrical life (AC) v contact current - 7S.14/34



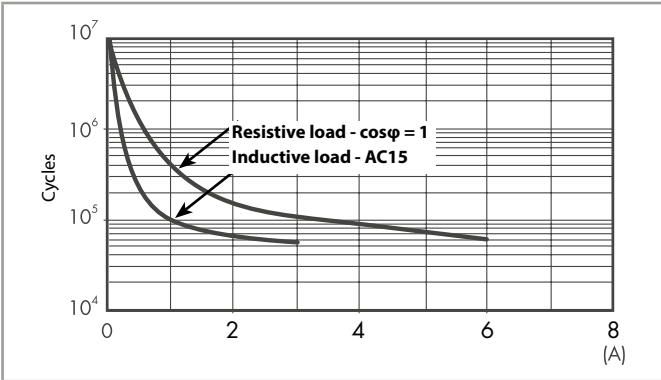
H 7S14* - Maximum DC1 breaking capacity - 7S.14/34



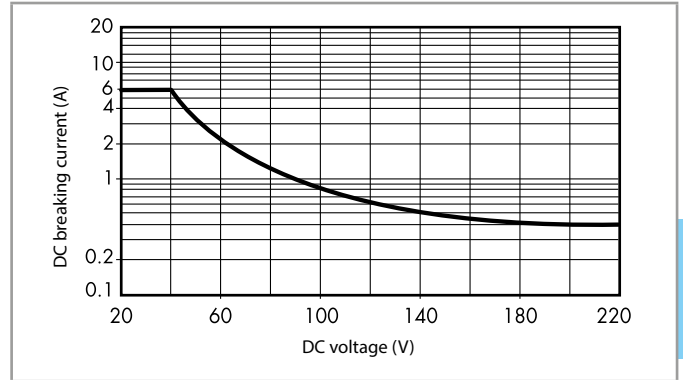
*When switching a load having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.

Contact specifications

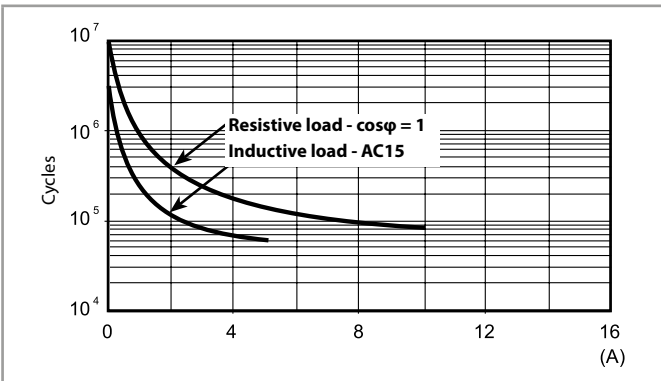
F 7S16 - Electrical life (AC) v contact current - 7S.16/36



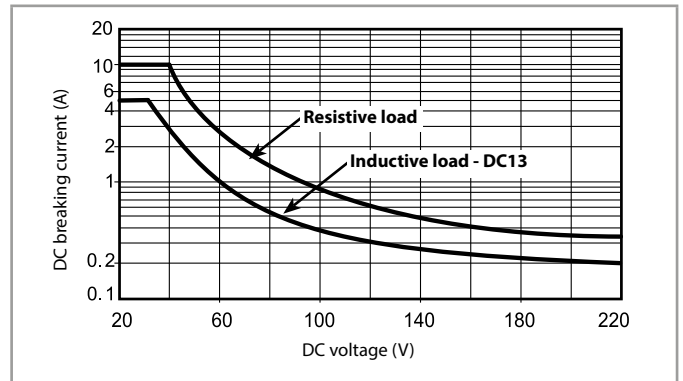
H 7S16* - Maximum DC1 breaking capacity - 7S.16/36



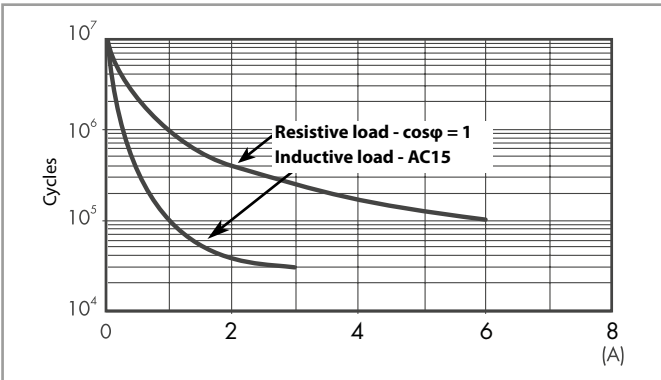
F 7S23 - Electrical life (AC) v contact current - 7S.23



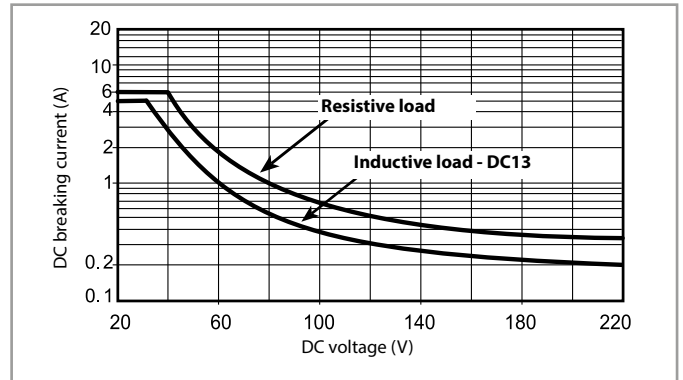
H 7S23* - Maximum DC breaking capacity - 7S.23



F 7S43 - Electrical life (AC) v contact current - 7S.43/63

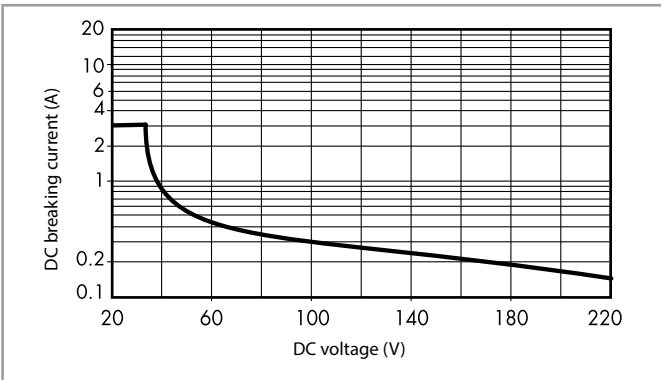


H 7S43* - Maximum DC breaking capacity - 7S.43/63

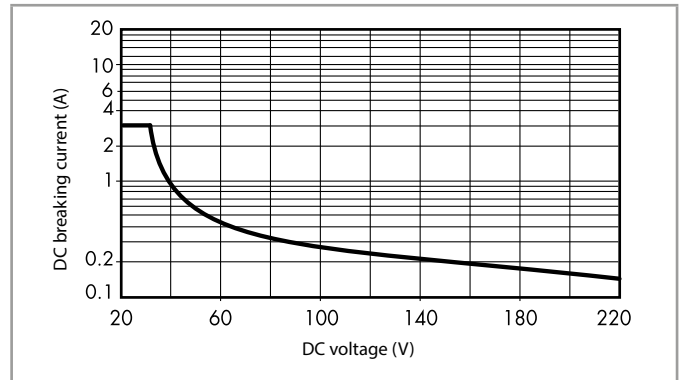


* When switching a load having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.

H 7S14/34 - Maximum DC13 breaking capacity - 7S.14/34



H 7S16/36 - Maximum DC13 breaking capacity - 7S.16/36



Coil specifications

DC coil data - type 7S.12/32

Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	W
V		V	V	mA	W
12	9.012	9.6	14.4	55	0.7
24	9.024	16.8	30	38.2	0.9

AC coil data - type 7S.12/32

Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	VA/W
V		V	V	mA	VA/W
110...125	8.120	93	138	9.8	1.2/1.1
230...240	8.230	195	264	11.8	2.8/1.2

DC coil data - type 7S.14/34 / 7S.16/36

Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	W
V		V	V	mA	W
12	9.012	9.6	14.4	64.7	0.8
24	9.024	16.8	30	42.2	1
110	9.110	77	138	11.6	1.4

AC coil data - type 7S.14/34 / 7S.16/36

Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	VA/W
V		V	V	mA	VA/W
110...125	8.120	93	138	10.2	1.3/1.1
230...240	8.230	195	264	11.8	2.9/1.2

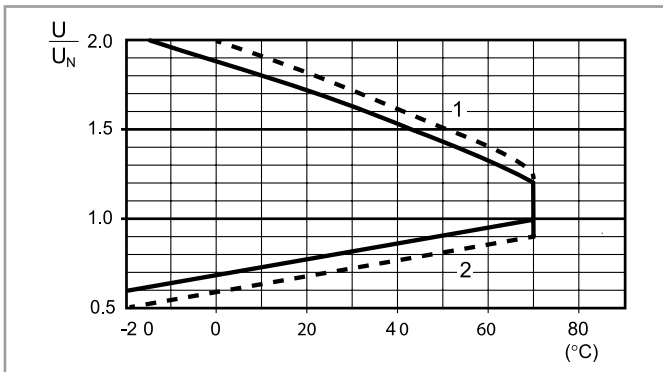
DC coil data - type 7S.23

Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	W
V		V	V	mA	W
12	9.012	9.6	14.4	47.1	0.6
24	9.024	16.8	30	26.6	0.6
48	9.048	33.6	60	16.2	0.8
110	9.110	77	138	8.8	1

DC coil data - type 7S.43/63

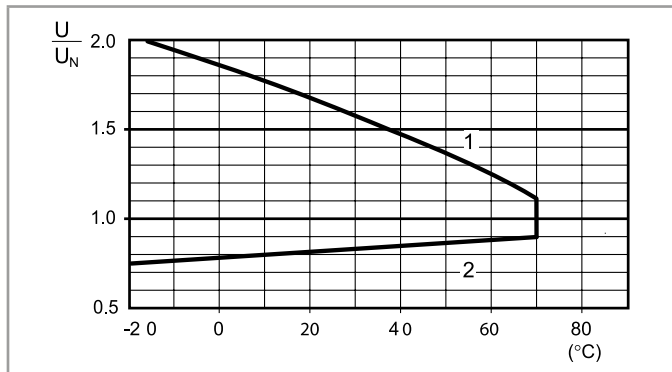
Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	W
V		V	V	mA	W
12	9.012	10.2	13.2	105	1.3
24	9.024	20.4	26.4	60	1.45
48	9.048	40.8	52.8	36	1.6
110	9.110	93.5	121	20	1.7

R 7S - DC coil operating range v ambient temperature - 7S.12/32 / 7S.23 / 7S.14/34 / 7S.16/36



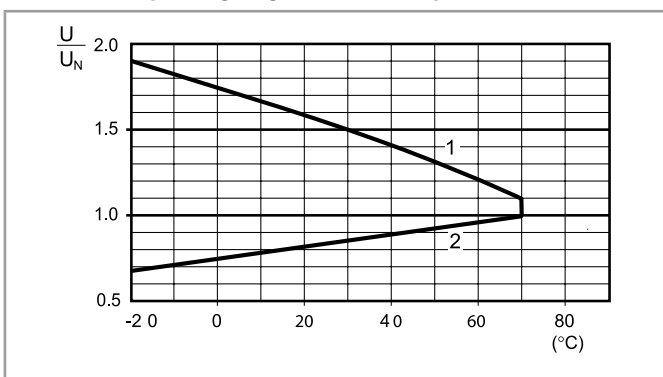
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.
- 24 and 110 V DC coils only excluding 7S.23

R 7S - AC coil operating range v ambient temperature - 7S.12/32 / 7S.14/34 / 7S.16/36



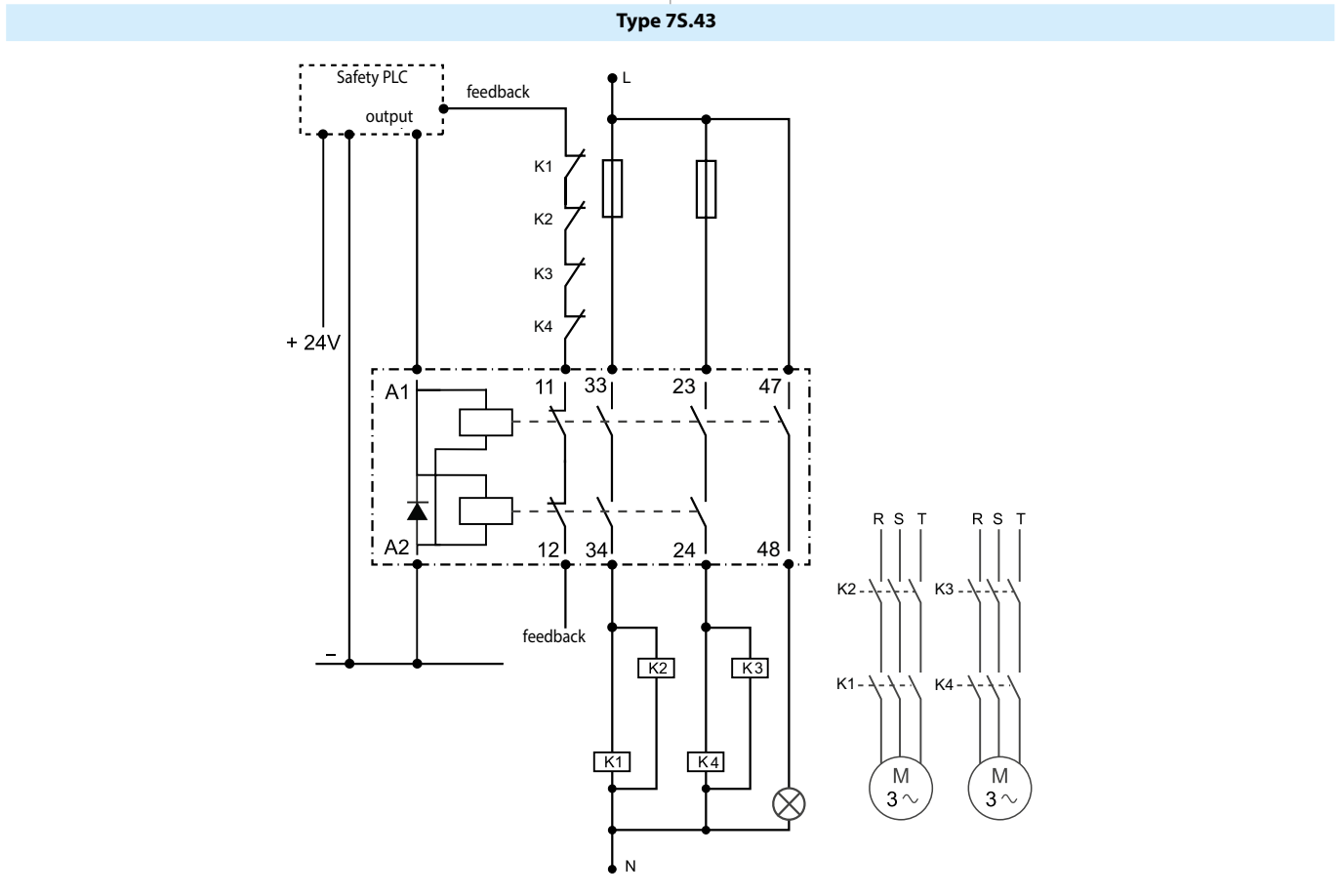
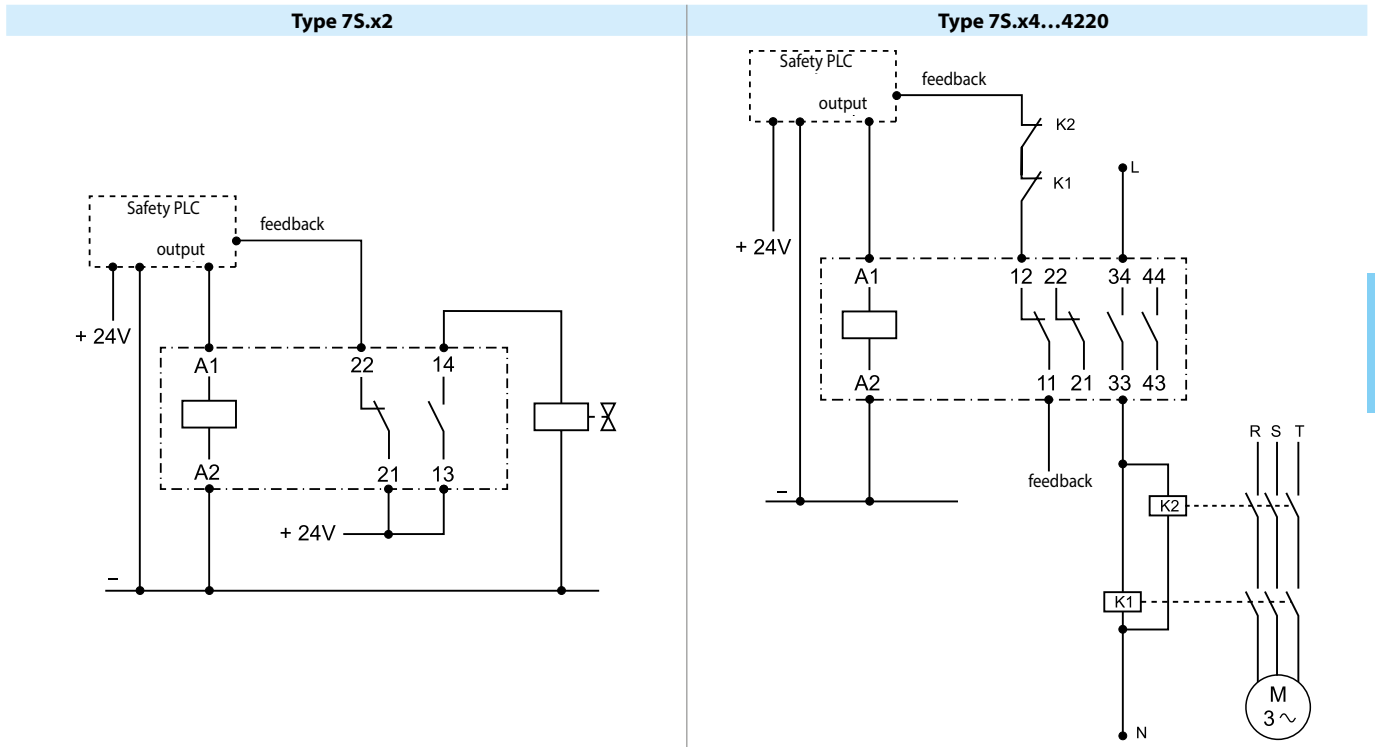
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

R 7S - DC coil operating range v ambient temperature - 7S.43/63



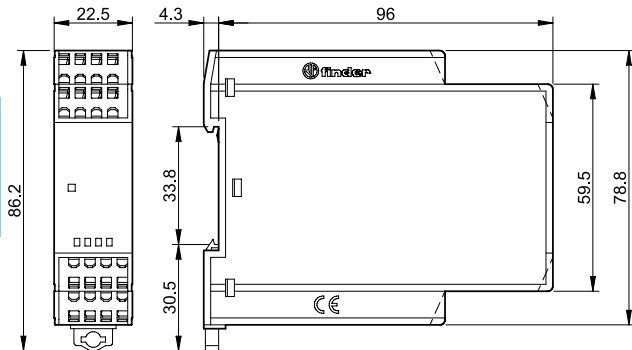
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Example wiring diagrams

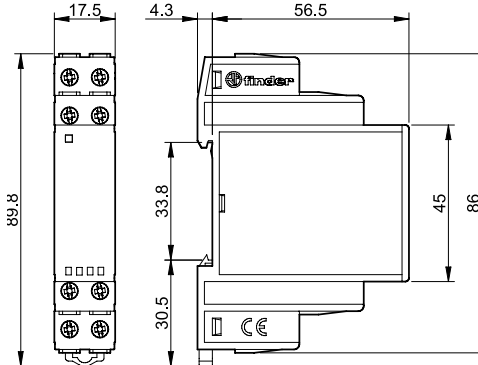


Outline drawings

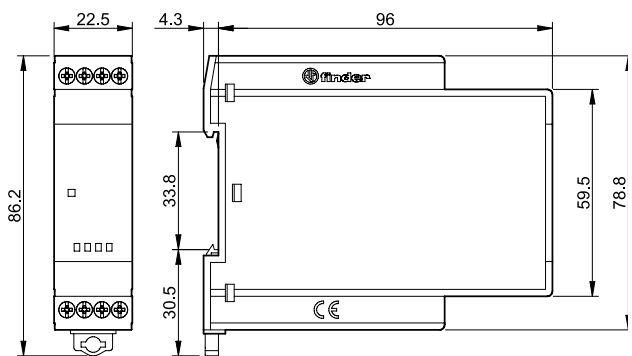
Types 75.12/14/16/43
Screwless terminal



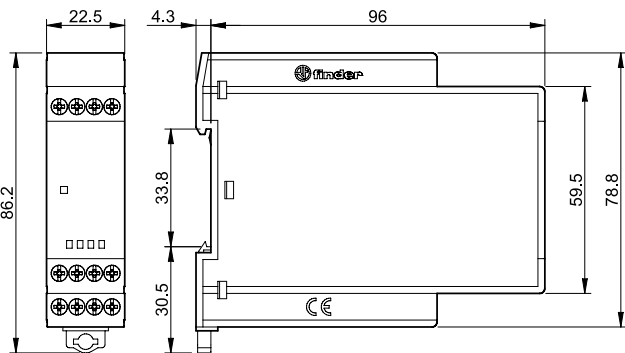
Type 75.23
Screw terminal



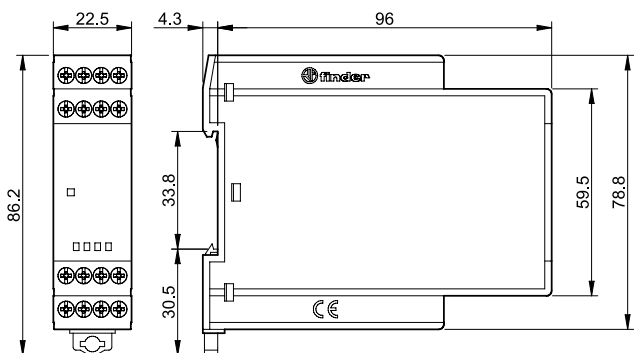
Type 75.32
Screw terminal



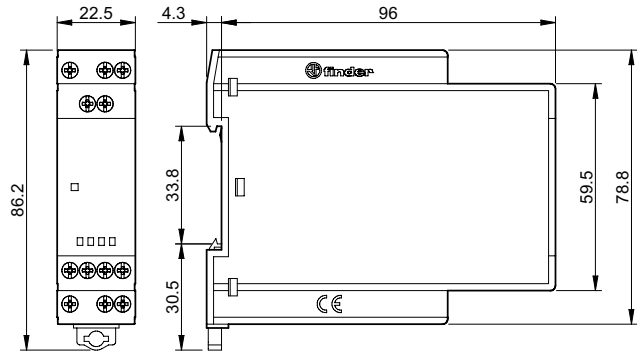
Type 75.34
Screw terminal



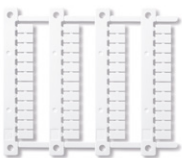
Type 75.36
Screw terminal



Type 75.63
Screw terminal



Accessories



060.48

Sheet of marker tags, plastic, 48 tags, 6 x 12 mm, for CEMBRE thermal transfer printers

060.48