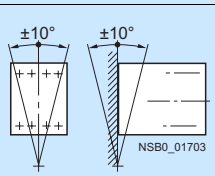
Technical specifications

Type		3RF24 ..-1....	3RF24 ..-2....	3RF24 ..-3....
General data				
Ambient temperature				
• During operation, derating from 40 °C	°C	-25 ... +60		
• During storage	°C	-55 ... +80		
Installation altitude	m	0 ... 1000; derating from 1000		
Shock resistance According to IEC 60068-2-27	*g*/ms	15/11		
Vibration resistance According to IEC 60068-2-6	*g*	2		
Degree of protection		IP20		
Insulation strength at 50/60 Hz (main/control circuit to floor)	V rms	4000		
Electromagnetic compatibility (EMC)				
• Emitted interference according to IEC 60947-4-3 - Conducted interference voltage - Emitted, high-frequency interference voltage		 Class A for industrial applications[1)] Class A for industrial applications		
• Interference immunity - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) - Induced RF fields according to IEC 61000-4-6 - Burst according to IEC 61000-4-4 - Surge according to IEC 61000-4-5	 kV MHz kV kV	 Contact discharge 4; air discharge 8; behavior criterion 2 0.15 ... 80; 140 dBµV; behavior criterion 1 2/5.0 kHz; behavior criterion 1 Conductor - ground 2; conductor - conductor 1; behavior criterion 2		
Connection type		**Screw connections**	**Spring-loaded terminal connections**	**Ring terminal end connections**
Connection, main contacts				
• Conductor cross-section - Solid - Finely stranded with end sleeve - Finely stranded without end sleeve - Solid or stranded, AWG conductors	 mm^2 mm^2 mm^2 	 2 x (1.5 ... 2.5)[2)], 2 x (2.5 ... 6)[2)] 2 x (1 ... 2.5)[2)], 2 x (2.5 ... 6)[2)], 1 x 10 -- 2 x (AWG 14 ... 10)	 2x (0.5 ... 2.5) 2x (0.5 ... 1.5) 2x (0.5 ... 2.5) 2 x (AWG 18 ... 14)	 -- -- -- --
• Stripped length	mm	10	10	--
• Terminal screw - Tightening torque	 Nm lb. in	M4 2 ... 2.5 18 ... 22	--	M5 2 ... 2.5 18 ... 22
• Cable lug - According to DIN 46234 - According to JIS C 2805		--	--	 5-2.5 ... 5-25 R 2-5 ,,, 14-5
Connection, auxiliary/control contacts				
• Conductor cross-section	mm AWG	1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) AWG 20 ... 12	0.5 ... 2.5 AWG 20 ... 12	1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) AWG 20 ... 12
• Stripped length	mm	7	10	7
• Terminal screw - Tightening torque, ∅ 3.5, PZ 1	 Nm lb. in	M3 0.5 ... 0.6 4.5 ... 5.3	--	M3 0.5 ... 0.6 4.5 ... 5.3
Permissible mounting positions				

[1)] These products were built as Class A devices. The use of these devices in residential areas could result in lead in radio interference. In this case these may be required to introduce additional interference suppression measures.

[2)] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in the range specified. If identical cross-sections are used, this restriction does not apply.

3RF24 solid-state contactors, 3-phase

Type	Type current I_{AC-51} at 40 °C	Rated operational current I_e according to IEC 60947-4-3 for 40 °C	Rated operational current I_e according to UL/CSA for 50 °C	Power loss at I_{AC-51}	Minimum load current	Max. leakage current	Rated impulse withstand capacity I_{tsm}	I^2t value
	A	A	A	W	A	mA	A	A^2s
Main circuit								
3RF24 10-.AB.5	10.5	7	7	23	0.1	10	200	200
3RF24 20-.AB.5	22	15	15	44	0.5	10	600	1800
3RF24 30-.AB.5	30	22	22	61	0.5	10	1200	7200
3RF24 40-.AB.5	40	30	30	80	0.5	10	1150	6600
3RF24 50-.AB.5	50	38	38	107	0.5	10	1150	6600
3RF24 10-.AC.5	10.5	7	7	31	0.1	10	300	450
3RF24 20-.AC.5	22	15	15	66	0.5	10	600	1800
3RF24 30-.AC.5	30	22	22	91	0.5	10	1200	7200
3RF24 40-.AC.5	40	30	30	121	0.5	10	1150	6600
3RF24 50-.AC.5	50	38	38	160	0.5	10	1150	6600

1) The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current I_e can be smaller depending on the connection method and start-up conditions. For derating see the characteristic curves on page 4/34.

Type		3RF24 ..-.AB.5	3RF24 ..-.AC.5
Main circuit			
Controlled phases		Two-phase	Three-phase
Rated operational voltage U_e	V	48 ... 600	48 ... 600
• Operating range	V	40 ... 660	40 ... 660
• Rated frequency	Hz	50/60 ±10 %	50/60 ±10 %
Rated insulation voltage U_i	V	600	600
Rated impulse withstand voltage U_{imp}	kV	6	6
Blocking voltage	V	1200	1200
Rage of voltage rise	V/µs	1000	1000

Type		3RF24 ..-...4.	3RF24 ..-...5.
Control circuit			
Method of operation		DC operation	AC operation
Rated control supply voltage U_s	V	4 ... 30	190 ... 230
Rated frequency Of the control supply voltage	Hz	--	50/60 ±10 %
Actuating voltage, max.	V	30	253
Typical actuating current	mA	30	15
Response voltage	V	4	180
Drop-out voltage	V	< 1	< 40
Operating times			
• ON-delay	ms	1 + max. one half-wave	40 + max. one half-wave
• OFF-delay	ms	1 + max. one half-wave	40 + max. one half-wave

3RF24 solid-state contactors, 3-phase

Fused version with semiconductor protection (similar to type of coordination "2")[1)]

The semiconductor protection for the 3RF24 controls can be used with different protective devices. Siemens recommends the use of special SITOR semiconductor fuses. The table below lists the maximum permissible fuses for each 3RF24 controlgear.

If a fuse is used with a higher rated current than specified, semiconductor protection is no longer guaranteed. However, smaller fuses with a lower rated current for the load can be used without problems.

Type	All-range fuses gR	Semiconductor fuses aR				Cable and line protection fuses				
		LV HRC design	Cylindrical design			LV HRC design	Cylindrical design			DIAZED
	LV HRC design SITOR 3NE1	SITOR 3NE8	10 x 38 mm SITOR 3NC1 0	14 x 51 mm SITOR 3NC1 4	22 x 58 mm SITOR 3NC2 2	gG 3NA	10 x 38 mm gG 3NW	14 x 51 mm gG 3NW	22 x 58 mm gG 3NW	Quick 5SB
Rated operational voltage U_e up to 506 V										
3RF24 10-.AB..	3NE1 813-0	3NE8 015-1	3NC1 020	3NC1 415	3NC2 220	3NA3 801	3NW6 001-1	3NW6 101-1	--	5SB1 71
3RF24 10-.AC..	3NE1 814-0	3NE8 003-1	3NC1 032	3NC1 430	3NC2 232	3NA3 803	3NW6 001-1	3NW6 101-1	--	5SB1 71
3RF24 20-.A...	3NE1 802-0	3NE8 020-1	3NC1 032	3NC1 450	3NC2 263	3NA3 805	3NW6 005-1	3NW6 105-1	3NW6 205-1	5SB3 11
3RF24 30-.A...	3NE1 818-0	3NE8 022-1	3NC1 032	3NC1 450	3NC2 200	3NA3 812	--	3NW6 112-1	--	5SB3 21
3RF24 40-.A...	3NE1 818-0	3NE8 022-1	--	3NC1 450	3NC2 200	3NA3 812	--	3NW6 112-1	3NW6 210-1	5SB3 21
3RF24 50-.A...	3NE1 818-0	3NE8 022-1	--	3NC1 450	3NC2 200	3NA3 812	--	--	3NW6 210-1	5SB3 21
Rated operational voltage U_e up to 660 V										
3RF24 10-.AB..	3NE1 813-0	3NE8 015-1	3NC1 016	3NC1 420	3NC2 220	--	--	--	--	--
3RF24 10-.AC..	3NE1 814-0	3NE8 003-1	3NC1 025	3NC1 430	3NC2 220	--	--	--	--	--
3RF24 20-.A...	3NE1 803-0	3NE8 018-1	3NC1 032	3NC1 450	3NC2 250	--	--	--	--	--
3RF24 30-.A...	3NE1 817-0	3NE8 021-1	3NC1 032	3NC1 450	3NC2 280	--	--	--	--	--
3RF24 40-.A...	3NE1 817-0	3NE8 022-1	--	3NC1 450	3NC2 280	--	--	--	--	--
3RF24 50-.A...	3NE1 020-2	3NE8 022-1	--	3NC1 450	3NC2 280	--	--	--	--	--

Suitable fuse holders, fuse bases and controls can be found in Catalog LV 1, Chapter 19.

1) Type of coordination "2" according to EN 60947-4-1:
In the event of a short-circuit, the controls in the load feeder must not endanger persons or the installation. They must be suitable for further operation. For fused configurations, the protective device must be replaced.