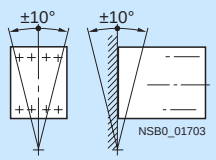
3RF24 solid-state reversing contactors, three-phase

Technical specifications

Order No.		3RF24 ..-1BD..
General data		
Ambient temperature:		
• During operation, derating from 40 °C	°C	-25 ... +60
• During storage	°C	-55 ... +80
Installation altitude	m	0 ... 1000; Derating over 1000 m on request
Shock resistance acc. to IEC 60068-2-27	*g*/ms	15/11
Vibration resistance acc. 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 acc. to IEC 60947-4-3		
- Conducted interference voltage		Class A for industrial applications[1)]
- Emitted, high-frequency interference voltage		Class A for industrial applications
• Interference immunity		
- Electrostatic discharge acc. to IEC 61000-4-2 (corresponds to degree of severity 3)	kV	Contact discharge 4; air discharge 8; behavior criterion 2
- Induced RF fields acc. to IEC 61000-4-6	MHz	0.15 ... 80; 140 dBµV; behavior criterion 1
- Burst acc. to IEC 61000-4-4	kV	2/5 kHz; behavior criterion 1
- Surge acc. to IEC 61000-4-5[2)]	kV	Conductor – ground 2; conductor – conductor 1; behavior criterion 2
Connection type		**Screw terminals**
Main contact connection		
• Conductor cross-section		
- Solid	mm^2	2 x (1.5 ... 2.5)[3)], 2 x (2.5 ... 6)[3)]
- Finely stranded with end sleeve	mm^2	2 x (1 ... 2.5)[3)], 2 x (2.5 ... 6)[3)], 1 x 10
- Finely stranded without end sleeve	mm^2	--
- Solid or stranded, AWG conductors		2 x (AWG 14 ... 10)
• Stripped length	mm	10
• Terminal screw		M4
- Tightening torque	NM lb. in	2 ... 2.5 18 ... 22
Connection, auxiliary/control contacts		
• Conductor cross-section		
- With/without end sleeve	mm AWG	1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) AWG 20 ... 12
• Stripped length	mm	7
• Terminal screw		M3
- Tightening torque, (∅ 3.5, PZ 1)	NM lb. in	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 the user may be required to introduce additional interference suppression measures.

2) To maintain the values, a surge suppressor 3TX7 462-3L (see Catalog LV 1 · 2007, page 3/116) should be used between the connections L1 and L3.

3) 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.

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Order No.	Fuse-free design with circuit-breaker CLASS 10					
	Rated operational current I_{AC-53} [1] acc. to IEC 60947-4-2			Power loss at I_{AC-53}	Short-circuit protection with coordination type "1" at an operational voltage of U_e up to 440 V	
	at 40 °C	UL/CSA, at 50 °C	at 60 °C	at 40 °C	Motor starter protectors/ circuit-breakers	I_q
	A	A	A	W	Type	kA
Main circuits						
3RF24 03-.BD.4	3.8	3.5	3.2	6	3RV1 021-1FA10	50
3RF24 05-.BD.4	5.4	5	4.6	8	3RV1 021-1GA10	50
3RF24 10-.BD.4	7.4	6.8	6.2	16	3RV1 021-1JA10	10

Order No.	Design with fuse with directly connected 3RB20 overload relay				Minimum load current	Max. leakage current	Rated impulse withstand current I_{tsm}	I^2t value
	Rated operational current I_{AC-53} [1] acc. to IEC 60947-4-2			Power loss at I_{AC-53}				
	at 40 °C	UL/CSA, at 50 °C	at 60 °C	at 40 °C				
	A	A	A	W	A	mA	A	A^2s
Main circuits								
3RF24 03-.BD.4	3.8	3.5	3.2	6	0.5	10	200	200
3RF24 05-.BD.4	5.4	5	4.6	8	0.5	10	600	1800
3RF24 10-.BD.4	7.4	6.8	6.2	16	0.5	10	600	1800

Type		3RF24 ..-.BD.4
Main circuits		
Controlled phases		Two-phase
Rated operational voltage U_e [2]	V	48 ... 460
• Operating range	V	40 ... 506
• Rated frequency	Hz	50/60 ± 10 %
Rated insulation voltage U_i	V	600
Rated impulse withstand voltage U_{imp}	kV	6
Blocking voltage	V	1200
Rage of voltage rise	V/µs	1000

Type		3RF24 ..-.BD0.	3RF24 ..-.BD5.
Control circuits			
Method of operation		DC operation	AC operation
Rated control supply voltage U_s	V	24 DC acc. to EN 61131-2	190 ... 253
Rated frequency of the control supply voltage	Hz	--	50/60 ± 10 %
Actuating voltage, max.	V	30	253
Typical actuating current	mA	15	10
Response voltage	V	15	180
Drop-out voltage	V	5	< 40
Operating times			
• ON-delay	ms	5	20
• OFF-delay	ms	5 + max. one half-wave	10 + max. one half-wave
• Interlocking time	ms	60 ... 100	50 ... 100

1) Values for direct mounting of the contactor on the circuit-breaker on request.

2) To reduce the risk of a phase short-circuit due to overvoltage, we recommend connecting a varistor type 3TX7 462-3L between L1 and L3. We recommend a design with semiconductor protection as short-circuit protection.