Technical specifications

Short-circuit breaking capacity I_{cu}, I_{cs} according to IEC 60947-2

This table shows the rated ultimate short-circuit breaking capacity I_{cu} and the rated service short-circuit breaking capacity I_{cs} of the 3RV1 motor starter protectors with different inception voltages dependent of the rated current I_n of the motor starter protectors.

Motor starter protector infeed is permissible at the upper or lower terminals without restricting the rated data. If the short-circuit current at the place of installation exceeds that rated short-circuit breaking capacity of the motor starter protector as specified in the table, a back-up fuse is required. Alternatively, a motor starter protector with a limiter function can be connected upstream.

The maximum rated current for the back-up fuse is specified in the tables. The rated ultimate short-circuit breaking capacity then applies as specified on the fuse.

Fuseless construction

Motor starter protector contactor combinations for short-circuit currents up to 50 kA can be ordered in the form of fuseless load feeders according to Part 6.

Motor starter protectors	Rated current I_n	Up to 240 V AC[1]			Up to 400 V AC[1]/ 415 V AC[2]			Up to 440 V AC[1]/ 460 V AC[2]			Up to 500 V AC[1]/ 525 V AC[2]			Up to 690 V AC[1]		
		I_{cu}	I_{cs}	Max. fuse (gL/gG)	I_{cu}	I_{cs}	Max. fuse (gL/gG)[3]	I_{cu}	I_{cs}	Max. fuse (gL/gG)[3]	I_{cu}	I_{cs}	Max. fuse (gL/gG)[3]	I_{cu}	I_{cs}	Max. fuse (gL/gG)[3][4]
Type	A	kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A
Size S00																
3RV10, 3RV16 11-0BD10	0.16 ... 1	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
	1.25; 1.6	100	100	°	100	100	°	100	100	°	100	100	°	2	2	20
	2; 2.5	100	100	°	100	100	°	100	100	°	10	10	35	2	2	35
	3.2; 4	100	100	°	100	100	°	50	10	40	3	3	40	2	2	40
	5; 6.3	100	100	°	100	100	°	50	10	50	3	3	50	2	2	50
	8	100	100	°	50	12.5	80	50	10	63	3	3	63	2	2	63
	10	100	100	°	50	12.5	80	10	10	63	3	3	63	2	2	63
	12	100	100	°	50	12.5	80	10	10	80	3	3	80	2	2	80
Size S0																
3RV1. 2	0.16 ... 1.6	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
	2; 2.5	100	100	°	100	100	°	100	100	°	100	100	°	8	8	25
	3.2	100	100	°	100	100	°	100	100	°	100	100	°	8	8	32
	4; 5	100	100	°	100	100	°	100	100	°	100	100	°	6	3	32
	6.3	100	100	°	100	100	°	100	100	°	100	100	°	6	3	50
	8	100	100	°	100	100	°	50	25	63	42	21	63	6	3	50
	10	100	100	°	100	100	°	50	25	80	42	21	63	6	3	50
	12.5	100	100	°	100	100	°	50	25	80	42	21	80	6	3	63
	16	100	100	°	50	25	100	50	10	80	10	5	80	4	2	63
	20	100	100	°	50	25	125	50	10	80	10	5	80	4	2	63
	22; 25	100	100	°	50	25	125	50	10	100	10	5	80	4	2	63
Size S2																
3RV1. 3	16	100	100	°	50	25	100	50	25	100	12	6	63	5	3	63
	20	100	100	°	50	25	100	50	25	100	12	6	80	5	3	63
	25	100	100	°	50	25	100	50	15	100	12	6	80	5	3	63
	32	100	100	°	50	25	125	50	15	125	10	5	100	4	2	63
	40; 45	100	100	°	50	25	160	50	15	125	10	5	100	4	2	63
	50	100	100	°	50	25	160	50	15	125	10	5	100	4	2	80
Size S3																
3RV1. 41	40	100	100	°	50	25	125	50	20	125	12	6	100	6	3	63
	50	100	100	°	50	25	125	50	20	125	12	6	100	6	3	80
	63	100	100	°	50	25	160	50	20	160	12	6	100	6	3	80
	75	100	100	°	50	25	160	50	20	160	8	4	125	5	3	100
	90; 100	100	100	°	50	25	160	50	20	160	8	4	125	5	3	125
Size S3, with increased switching capacity																
3RV1. 42 / 3RV17 42	16 / 10	100	100	°	100	50	°	100	50	°	30	15	80	12	7	63
	20 / 15	100	100	°	100	50	°	100	50	°	30	15	80	12	7	63
	25 / 20	100	100	°	100	50	°	100	50	°	30	15	80	12	7	63
	32 / 25	100	100	°	100	50	°	100	50	°	22	11	100	12	7	63
	40 / 30	100	100	°	100	50	°	100	50	°	18	9	160	12	6	80
	50 / 35 ... 40	100	100	°	100	50	°	100	50	°	15	7.5	160	10	5	100
	63 / 45 ... 50	100	100	°	100	50	°	70	50	200	15	7.5	160	7.5	4	100
	75 / 60	100	100	°	100	50	°	70	50	200	10	5	160	6	3	125
	90 / 70	100	100	°	100	50	°	70	50	200	10	5	160	6	3	160
	100 / --	100	100	°	100	50	°	70	50	200	10	5	160	6	3	160

Short-circuit proof up to at least 50 kA

° No back-up fuse required, since short-circuit proof up to 100 kA

1) 10 % overvoltage.
2) 5 % overvoltage.
3) Back-up fuse only required if the short-circuit current at the place of installation > I_{cu}.
4) Alternatively, fuseless limiter combinations for 690 V AC can also be used.

General data

Short-circuit breaking capacity I_{cuIT} in the IT system (IT network) according to IEC 60947-2

3RV1 motor starter protectors are suitable for operation in IT systems. Values valid for triple-pole short-circuit are I_{cu} up to I_{cs}. In case of double ground fault on different phases at the input and output side of a motor starter protector, the special short-circuit breaking capacity I_{cuIT} applies. The specifications in the table below apply to 3RV1 motor starter protectors.

In the colored areas, I_{cuIT} is 100 kA, or in some ranges it is 50 kA. Therefore the motor starter protectors are short-circuit proof in these ranges.

If the short-circuit current at the place of installation exceeds that rated short-circuit breaking capacity of the motor starter protector as specified in the table, a back-up fuse is required. The maximum rated current for the back-up fuse is specified in the tables. The rated short-circuit breaking capacity then applies as specified on the fuse.

Motor starter protectors	Rated current I_n	Up to 240 V AC[1]		Up to 400 V AC[1]/415 V AC[2]		Up to 500 V AC[1]/525 V AC[2]		Up to 690 V AC[1]	
		I_{cuIT}	Max. fuse (gL/gG)[3]	I_{cuIT}	Max. fuse (gL/gG)[3][4]	I_{cuIT}	Max. fuse (gL/gG)[3]	I_{cuIT}	Max. fuse (gL/gG)[3]
Type	A	kA	A	kA	A	kA	A	kA	A
Size S00									
3RV10, 3RV16 11-0BD10	0.16 ... 0.63	100	°	100	°	100	°	100	°
	0.8; 1	100	°	100	°	100	°	2	16
	1.25; 1.6	100	°	2	20	2	20	2	20
	2; 2.5	100	°	2	35	2	35	2	35
	3.2; 4	100	°	2	40	2	40	2	40
	5; 6.3	100	°	2	50	2	50	2	50
	8; 10	50	80	2	63	2	63	2	63
	12	50	80	2	80	2	80	2	80
Size S0									
3RV1. 2	0.16 ... 0.63	100	°	100	°	100	°	100	°
	0.8; 1	100	°	100	°	100	°	6	16
	1.25; 1.6	100	°	100	°	8	20	6	20
	2; 2.5	100	°	8	25	8	25	6	25
	3.2	100	°	8	32	8	32	6	32
	4; 5	100	°	6	32	4	32	3	32
	6.3 ... 10	100	°	6	50	4	50	3	50
	12.5	100	°	6	63	4	63	3	63
	16 ... 25	50	80	4	63	3	63	2	63
Size S2									
3RV1. 3	16	50	100	8	100	6	80	5	63
	20	50	125	8	100	6	80	5	63
	25	50	125	8	100	6	80	5	63
	32	50	125	6	125	4	100	3	80
	40 ... 50	50	160	6	125	4	100	3	80
Size S3									
3RV1. 41	40	50	125	10	63	5	50	5	50
	50	50	125	8	80	3	63	3	63
	63	50	160	6	80	3	63	3	63
	75	50	160	5	100	2	80	2	80
	90; 100	50	160	5	125	2	100	2	100
Size S3, with increased switching capacity									
3RV1. 42 / 3RV17 42	16 / 10	100	°	12	63	6	50	6	50
	20 / 15	100	°	12	63	6	50	6	50
	25 / 20	100	°	12	63	6	50	6	50
	32 / 25	100	°	12	63	6	50	6	50
	40 / 30	100	°	12	80	6	63	6	63
	50 / 35 ... 40	100	°	10	100	4	80	4	80
	63 / 45 ... 50	100	°	7.5	100	4	80	4	80
	75 / 60	100	°	6	125	3	100	3	100
	90 / 70	100	°	6	160	3	125	3	125
	100 / --	100	°	6	160	3	125	3	125

Short-circuit proof up to at least 50 kA

° No back-up fuse required, since short-circuit proof up to 100 kA

1) 10 % overvoltage.
2) 5 % overvoltage.
3) Back-up fuse only required, if short-circuit current at the place of installation > I_{cuIT}.
4) Alternatively, fuseless limiter combinations for 690 V AC can also be used.

Limiter function with standard devices for 500 V AC and 690 V AC according to IEC 60947-2

The table shows the rated ultimate short-circuit breaking capacity I_{cu} and the rated service short-circuit breaking capacity I_{cs} with an upstream standard motor starter protector that fulfills the limiter function at 500 V AC and 690 V AC. The short-circuit breaking capacity can be increased significantly with an upstream standard motor starter protector.

The motor starter protector which is connected downstream must be set to the rated current of the load.

With motor starter protector combination assemblies, note the clearance to grounded parts and between the motor starter protectors. Short-circuit proof wiring between the motor starter protectors must be ensured. The motor starter protectors can be mounted side-by-side in a modular arrangement.

Standard motor starter protectors Type	Standard motor starter protectors with limiter function Type Rated current I_n	Rated current I_n A	**Up to 500 V AC[1]/525 V AC[2]** I_{cu} kA	 I_{cs} kA	**Up to 690 V AC[1]** I_{cu} kA	 I_{cs} kA
Size S0						
3RV10 2	**3RV13 21-4DC10**	Up to 1	°	°	°	°
		1.25	°	°	°	°
	I_n = 25 A	1.6	°	°	°	°
		2	°	°	50	25
		2.5	°	°	50	25
		3.2	°	°	50	25
		4	°	°	50	25
		5	°	°	50	25
		6.3	°	°	50	25
		8	100	50	20	10
		10	100	50	20	10
		12.5	100	50	20	10
		16	100	50	20	10
		20	100	50	20	10
		22	100	50	20	10
		25	100	50	20	10
Size S2						
3RV10 3	**3RV13 31-4HC10**	16	100	50	50	25
		20	100	50	50	25
	I_n = 50 A	25	100	50	50	25
		32	100	50	50	25
		40	100	50	50	25
		50	100	50	50	25
Size S3						
3RV10 4	**3RV13 41-4HC10**	32	100	50	50	25
		40	100	50	50	25
	I_n = 50 A	50	100	50	50	25
	3RV13 41-4MC10	50	100	50	50	25
		63	100	50	50	25
	I_n = 100 A	75	100	50	50	25
		90	100	50	50	25
		100	100	50	50	25

Short-circuit proof up to 100 kA

° No back-up fuse required, since short-circuit proof up to 100 kA

1) 10 % overvoltage.

2) 5 % overvoltage.

General data

General technical specifications

Type			3RV1. 1[1]	3RV1. 2	3RV1. 3	3RV1. 4	3RV17 42
Standards							
• IEC 60947-1, EN 60947-1 (VDE 0660 Part 100)			Yes				
• IEC 60947-2, EN 60947-2 (VDE 0660 Part 101)			Yes				
• IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102)			Yes				No
Size			S00	S0	S2	S3	
Number of poles			3				
Max. rated current $I_{n\ max}$ (= max. rated operational current I_e)		A	12	25	50	100	70
Permissible ambient temperature							
• Storage/transport		°C	– 50 ... + 80				
• Operation		°C	– 20 ... + 70[2]				
Permissible rated current at inside temperature of control cabinet							
• + 60 °C		%	100				
• + 0 °C		%	87				
Motor starter protector inside enclosure							
Permissible rated current at inside temperature of enclosure							
• + 35 °C		%	100				
• + 60 °C		%	87				
Rated operational voltage U_e		V	690[3]				
Rated frequency		Hz	50/60				
Rated insulation voltage U_i		V	690				
Rated impulse withstand voltage U_{imp}		kV	6				
Utilization categories							
• IEC 60947-2 (motor starter protector)			A				
• IEC 60947-4-1 (motor starter)			AC-3				--
Trip class CLASS	According to IEC 60947-4-1		10		10/20		--
DC short-circuit breaking capacity (time constant t = 5 ms)							
• 1 conducting path 150 V DC		kA	10				
• 2 conducting paths in series 300 V DC		kA	10				
• 3 conducting paths in series 450 V DC		kA	10				
Power loss P_v per motor starter protector Dependent on rated current I_n (upper setting range) $R_{per\ conducting\ path} = P/I^2 \times 3$	I_n: ... 1.25 A	W	5	--	--	--	--
	I_n: 1.6 ... 6.3 A	W	6	--	--	--	--
	I_n: 8 ... 12 A	W	7	--	--	--	--
	I_n: ... 0.63 A	W	--	5	--	--	--
	I_n: 0.8 ... 6.3 A	W	--	6	--	--	--
	I_n: 8 ... 16 A	W	--	7	--	--	--
	I_n: 20 ... 25 A	W	--	8	--	--	--
	I_n: ... 25 A	W	--	--	12	--	--
	I_n: 32 A	W	--	--	15	--	--
	I_n: 40 ... 50 A	W	--	--	20	--	--
	I_n: ... 63 A	W	--	--	--	20	--
	I_n: 75 and 90 A	W	--	--	--	30	--
	I_n: ... 100 A	W	--	--	--	38	--
	I_n: ... 10 A	W	--	--	--	--	5.7
	I_n: ... 35 A	W	--	--	--	--	10.5
	I_n: ... 70 A	W	--	--	--	--	19.7
Shock resistance	According to IEC 60068-2-27	g/ms	25/11 (square and sine pulse)				
Degree of protection	According to IEC 60529		IP20[4]				
Touch protection	According to EN 50274		Finger-safe				
Temperature compensation	According to IEC 60947-4-1	°C	– 20 ... + 60				
Phase failure sensitivity	According to IEC 60947-4-1		Yes				No
Explosion protection – Safe operation of motors with "increased safety" type of protection			Yes, for 3RV10 (CLASS 10)				No
EU type test certificate number according to directive 94/9/EU			DMT 02 ATEX F 001 ⟨Ex⟩ II (2) GD, DMT 02 ATEX F 001 N1 ⟨Ex⟩ II (2) GD				
Isolating function	According to IEC 60947-2		Yes				
Main and EMERGENCY-STOP switch characteristics[5]	According to IEC 60204-1 (VDE 0113)		Yes				
Safe isolation between main and auxiliary circuits, required for PELV applications	According to EN 60947-1						
• Up to 400 V + 10 %			Yes				
• Up to 415 V + 5 % (higher voltages on request)			Yes				
Permissible mounting position			Any, according to IEC 60447 start command "I" right-hand side or top				
Mechanical endurance		Oper. cycles	100000		50000		
Electrical endurance		Oper. cycles	100000		25000		
Max. switching frequency per hour (motor starts)		1/h	15				

For short-circuit breaking capacity I_{cu}, I_{cs} see table of same name.

[1] For 3RV16 voltage transformer motor starter protectors see more "Technical Specifications".

[2] Above + 60 °C current reduction.

[3] 500 V with molded-plastic enclosure.

[4] Terminal compartment IP00.

[5] With appropriate accessories.

Conductor cross-sections of main circuit					
Type		**3RV1.**	**3RV1. 2**	**3RV1. 3**	**3RV1. 4/ 3RV17 42**
Connection type		**Screw terminals**		**Screw terminals with box terminal**	
Terminal screw		Pozidriv size 2		Pozidriv size 2	4 mm allen screw
Prescribed tightening torque	Nm	0.8 ... 1.2	2 ... 2.5	3 ... 4.5	4 ... 6
Conductor cross-sections (1 or 2 conductors connectable)					
• Solid	mm^2	2 x (0.5 ... 1.5)[4], 2 x (0.75 ... 2.5)[4]	2 x (1 ... 2.5)[4], 2 x (2.5 ... 6)[4]	2 x (0.75 ... 16)	2 x (2.5 ... 16)
• Finely stranded with end sleeve	mm^2	2 x (0.5 ... 1.5)[4], 2 x (0.75 ... 2.5)[4]	2 x (1 ... 2.5)[4], 2 x (2.5 ... 6)[4]	2 x (0.75 ... 16), 1 x (0.75 ... 25)	2 x (2.5 ... 35), 1 x (2.5 ... 50)
• Stranded	mm^2	2 x (0.5 ... 1.5)[4], 2 x (0.75 ... 2.5)[4]	2 x (1 ... 2.5)[4], 2 x (2.5 ... 6)[4]	2 x (0.75 ... 25), 1 x (0.75 ... 35)	2 x (10 ... 50), 1 x (10 ... 70)
• AWG conductors, solid or stranded	AWG	2 x (18 ... 14)	2 x (14 ... 10)	2 x (18 ... 2), 1 x (18 ... 2)	2 x (10 ... 1/0)[4], 2 x (10 ... 2/0)[4]
Ribbon cable conductors (number x width x circumference)	mm	--		2 x (6 x 9 x 0.8)	
Removable box terminal[1]					
• With copper bars[2]		--		--	18 x 10
• With cable lugs[3]		--		--	Up to 2 x 70
Connection type		**Cage Clamp terminals**[5][6]			
Conductor cross-sections (1 or 2 conductors connectable)					
• Solid	mm^2	2 x (0.25 ... 2.5)	--	--	
• Finely stranded with end sleeve	mm^2	2 x (0.25 ... 1.5)	--	--	
• Finely stranded without end sleeve	mm^2	2 x (0.25 ... 2.5)	--	--	
• AWG conductors, solid or stranded	AWG	2 x (24 ... 14)	--	--	

Max. external diameter of the cable insulation: 3.6 mm.

1) Cable-lug and busbar connection possible after removing the box terminals.

2) If bars larger than 12 mm x 10 mm are connected, a 3RT19 46-4EA1 terminal cover is needed to comply with the phase clearance.

3) If conductors larger than 25 mm^2 are connected, a 3RT19 46-4EA1 terminal cover is needed to comply with the phase clearance.

4) 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.

5) For corresponding 8WA2 803 or 8WA2 880 opening tools, see "Accessories".

6) With conductor cross-sections of ≤ 1 mm^2 an "insulation stop" must be used (see "Contactors and Contactor Assemblies" -->"Accessories").

General data

Permissible rated data of devices approved for North America (UL/CSA)

Motor starter protectors of the 3RV1 series are approved for UL/CSA and according to UL 508 and CSA 22.2 No. 14 they can be used on their own or as a load feeder in combination with a contactor.

These motor starter protectors can be used as "Manual Motor Controllers" for "Group Installations", as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations" and as "Self-Protected Combination Motor Controllers" (Type E).

3RV1 motor starter protectors as "Manual Motor Controllers"

If used as a "Manual Motor Controller", the motor starter protector is always operated in combination with an upstream short-circuit protection device. Approved fuses or a motor starter protector according to UL 489/CSA 22.2 No. 5 can be used.
These devices must be dimensioned according to the National Electrical Code (UL) or Canadian Electrical Code (CSA).

Approval of the 3RV as a Manual Motor Controller can be found under the following file numbers: UL File No. 47705, CSA Master Contract 165071, Product Class 3211 05.

Motor starter protectors		hp rating[1] for FLA[2] max.		Rated current I_n	240 V AC		480 Y/277 V AC		600 Y/347 V AC	
					UL	CSA	UL	CSA	UL	CSA
Type	V	1-phase	3-phase	A	I_{bc}[3] kA	I_{bc}[3] kA	I_{bc}[3] kA	I_{bc}[3] kA	I_{bc}[3] kA	I_{bc}[3] kA
Size S00										
3RV10 11, 3RV16 11-0BD10				0.16 ... 2	65	65	65	65	10	10
				2.5	65	65	65	65	10	10
FLA[2] max. 12 A, 600 V	115	1/2	--	3.2	65	65	65	65	10	10
	200	1 1/2	3	4	65	65	65	65	10	10
NEMA size 00	230	2	3	5	65	65	65	65	10	10
	460	--	7 1/2	6.3	65	65	65	65	10	10
	575/600	--	10	8	65	65	65	65	10	10
				10	65	65	65	65	10	10
				12	65	65	65	65	10	10
Size S0										
3RV10 21 / 3RV11 21, 3RV13 21				0.16 ... 3.2	65	65	65	65	30	30
				4	65	65	65	65	30	30
FLA[2] max. 25 A, 600 V	115	2	--	5	65	65	65	65	30	30
	200	3	7 1/2	6.3	65	65	65	65	30	30
NEMA size 1	230	5	7 1/2	8	65	65	65	65	30	30
	460	--	15	10	65	65	65	65	30	30
	575/600	--	20	12.5	65	65	65	65	30	30
				16	65	65	65	65	10	10
				20	65	65	65	65	10	10
				22	65	65	65	65	10	10
				25	65	65	65	65	10	10
Size S2										
3RV10 31 / 3RV11 31, 3RV13 31				16	65	65	65	65	25	25
				20	65	65	65	65	25	25
FLA[2] max. 50 A, 600 V	115	3	--	25	65	65	65	65	25	25
	200	7 1/2	15	32	65	65	65	65	25	25
NEMA Size 2	230	10	20	40	65	65	65	65	25	25
	460	--	40	45	65	65	65	65	25	25
	575/600	--	50	50	65	65	65	65	25	25
Size S3										
3RV10 41 / 3RV10 42, 3RV11 42, 3RV13 41 / 3RV13 42				16	65	65	65	65	30	30
				20	65	65	65	65	30	30
FLA[2] max. 99 A, 600 V	115	10	--	25	65	65	65	65	30	30
	200	20	30	32	65	65	65	65	30	30
NEMA Size 3	230	20	40	40	65	65	65	65	30	30
	460	--	75	50	65	65	65	65	30	30
	575/600	--	100	63	65	65	65	65	30	30
				75	65	65	65	65	30	30
				90	65	65	65	65	30	30
				100	65	65	65	65	30	30

[1] hp rating = Power rating in horse power (maximum motor rating).

[2] FLA = Full Load Amps/Motor full load current.

[3] Complies with "short-circuit breaking capacity" according to UL/CSA.

General data

3RV10 motor starter protectors as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations"

The application as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations" is only available from UL.
CSA does not recognize this approval! When the motor starter protector is used as a "Manual Motor Controller Suitable for Tap Conductor Protection in Group Installations", it must always be combined with upstream short-circuit protection.

As short-circuit-protection device, approved fuses or a motor starter protector according to UL 489 can be used.
These devices must be dimensioned according to the National Electrical Code.

The 3RV10 motor starter protectors are approved as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations" under the following file number:
UL File No. 47705.

Motor starter protectors		hp rating[1] for FLA[2] max.		Rated current I_n	240 V AC	Up to 480 Y/277 V AC	Up to 600 Y/347 V AC
					UL	UL	UL
Type	V	1-phase	3-phase	A	I_{bc}[3] kA	I_{bc}[3] kA	I_{bc}[3] kA
Size S00							
3RV10 11				0.16 ... 0.8	65	65	--
				1	65	65	--
FLA[2] max. 8 A, 480 V	115	1/3	--	1.25	65	65	--
	200	3/4	2	2	65	65	--
NEMA size 0	230	1	2	2.5	65	65	--
	460	--	5	3.2	65	65	--
	575/600	--	--	4	65	65	--
				5	65	65	--
				6.3	65	65	--
				8	65	65	--
Size S0							
3RV10 21				0.16 ... 1.6	50	50	30
				2	50	50	30
FLA[2] max.	115	2	--	2.5	50	50	30
22 A, 480 V	200	3	7 1/2	3.2	50	50	30
12.5 A, 600 V	230	3	7 1/2	4	50	50	30
	460	--	15	5	50	50	30
NEMA Size 1	575/600	--	10	6.3	50	50	30
				8	50	50	30
				10	50	50	30
				12.5	50	50	30
				16	50	50	--
				20	50	50	--
				22	50	50	--
Size S2							
3RV10 31				16	50	50	25
				20	50	50	25
FLA[2] max.	115	3	--	25	50	50	25
50 A, 600 V	200	7 1/2	15	32	50	50	25
NEMA Size 2	230	10	20	40	50	50	25
	460	--	40	45	50	50	25
	575/600	--	50	50	50	50	25
Size S3							
3RV10 4.				16	50	50	30
				20	50	50	30
FLA[2] max.	115	10	--	25	50	50	30
100 A, 480 V	200	20	30	32	50	50	30
75 A, 600 V	230	20	40	40	50	50	30
	460	--	75	50	50	50	30
NEMA Size 3	575/600	--	75	63	50	50	30
				75	50	50	30
				90	50	50	--
				100	50	50	--

[1] hp rating = Power rating in horse power (maximum motor rating).

[2] FLA = Full Load Amps/Motor full load current.

[3] Complies with "short-circuit breaking capacity" according to UL.

General data

3RV10 motor starter protectors as "Self-Protected Combination Motor Controllers (Type E)"

As of 16 July 2001, UL 508 demands a line-side 1-inch air distance and 2-inch creepage distance for "Self-Protected Combination Motor Controllers".

Therefore, 3RV10 motor starter protectors of size S0 and S3 are approved to UL 508 in combination with the terminal blocks listed below.

The basic unit of the 3RV10 motor starter protector in size S2 conforms with the required air/creepage distances.

CSA does not demand these extended air/creepage distances. According to CSA, these terminal blocks can be omitted when the device is used as a "Self-Protected Combination Motor Controller".

The 3RV10 motor starter protectors are approved as "Self-Protected Combination Motor Controllers" under the following file numbers: UL File No. E156943, Product Class NKJH, CSA Master Contract 165071, Product Class 3211 08.

Motor starter protectors		hp rating[1] for FLA[2] max.		Rated current I_n	Up to 240 V AC		Up to 480 Y/277 V		Up to 600 Y/347 V	
					UL	CSA	UL	CSA	UL	CSA
Type	V	1-phase	3-phase	A	I_{bc}[3] kA	I_{bc}[3] kA	I_{bc}[3] kA	I_{bc}[3] kA	I_{bc}[3] kA	I_{bc}[3] kA
Size S0										
3RV10 21 + 3RV19 28-1H[4]				0.16 ... 1.6	65	65	65	65	30	30
				2	65	65	65	65	30	30
FLA[2] max.	115	2	--	2.5	65	65	65	65	30	30
22 A, 480 V	200	3	7 1/2	3.2	65	65	65	65	30	30
12.5 A, 600 V	230	3	7 1/2	4	65	65	65	65	30	30
	460	--	15	5	65	65	65	65	30	30
NEMA Size 1	575/600	--	10	6.3	65	65	65	65	30	30
				8	65	65	65	65	30	30
				10	65	65	65	65	30	30
				12.5	65	65	65	65	30	30
				16	65	65	65	65	--	--
				20	65	65	65	65	--	--
				22	65	65	65	65	--	--
Size S2										
3RV10 31				16	65	65	65	65	25	25
				20	65	65	65	65	25	25
FLA[2] max.	115	3	--	25	65	65	65	65	25	25
50 A, 600 V	200	7 1/2	15	32	65	65	65	65	25	25
NEMA Size 2	230	10	20	40	65	65	65	65	25	25
	460	--	40	45	65	65	65	65	25	25
	575/600	--	50	50	65	65	65	65	25	25
Size S3										
3RV10 41 + 3RT19 46-4GA07[4]				16	65	65	65	65	30	30
				20	65	65	65	65	30	30
FLA[2] max.	115	10	--	25	65	65	65	65	30	30
100 A, 480 V	200	20	30	32	65	65	65	65	30	30
75 A, 600 V	230	20	40	40	65	65	65	65	30	30
	460	--	75	50	65	65	65	65	30	30
NEMA Size 3	575/600	--	75	63	65	65	65	65	30	30
				75	65	65	65	65	30	30
				90	65	65	65	65	--	--
				100	65	65	65	65	--	--

1) hp rating = Power rating in horse power (maximum motor rating).

2) FLA = Full Load Amps/Motor full load current.

3) Complies with "short-circuit breaking capacity" according to UL/CSA.

4) Not required for CSA.

General data

3RV17 motor starter protectors as "Circuit Breakers"

The 3RV17 motor starter protectors are approved as "Circuit Breakers" according to UL 489 and CSA 22.2 No. 5-02. They can be used therefore as upstream short-circuit protective devices for "Manual Motor Controllers" and "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations".

The 3RV17 motor starter protectors are approved as "Circuit Breakers" under the following file numbers: UL File No. E235044 CSA Master Contract 165071, Product Class 1432 01.

Motor starter protectors	Rated current I_n	**240 V AC**	**480 Y/277 V AC**	**600 Y/347 V AC**
		UL	UL	UL
		I_{cu} [1]	I_{cu} [1]	I_{cu} [1]
Type	A	kA	kA	kA
Size S3				
3RV17 42	10	35	35	20
	15	35	35	20
	20	35	35	20
	25	35	35	20
	30	35	35	20
	35	35	35	20
	40	35	35	20
	45	35	35	20
	50	35	35	20
	60	35	35	20
	70	35	35	20

[1] Complies with "short-circuit breaking capacity" according to UL.

Rated data of the auxiliary switches and alarm switches

Type		**Lateral auxiliary switches with**	**Transverse auxiliary switches with**	
		1 NO + 1 NC, 2 NO, 2 NC, 2 NO + 2 NC and alarm switch	**1 changeover contact**	**1 NO + 1 NC, 2 NO**
Max. rated voltage				
According to NEMA (UL)	V AC	600		250
According to NEMA (CSA)	V AC	600		250
Uninterrupted current	A	10	5	2.5
Switching capacity		A600	B600	C300
		Q300	R300	R300

General data

Voltage transformer motor starter protectors

General technical specifications				
Type		**3RV16 11-1AG14**	**3RV16 11-1CG14**	**3RV16 11-1DG14**
Rated current I_n	A	1.4	2.5	3
Ambient temperature				
• During storage/transport	°C	– 50 ... + 80		
• During operation	°C	– 20 ... + 60 (up to + 70 °C is possible with current reduction)		
Rated operational voltage U_e	V	400		
Rated frequency	Hz	16.66 ... 60		
Rated insulation voltage U_i	V	690		
Short-circuit breaking capacity I_{cu} at 400 V AC	kA	50		
Set value of the thermal overload release	A	1.4	2.5	3
Response value of the instantaneous electronic trip unit	A	6 ± 20 %	10.5 ± 20 %	20 ± 20 %
Tripping time of the instantaneous electronic trip unit	ms	Approx. 6 at 12 A	Approx. 6 at 20 A	Approx. 6 at 40 A
Internal resistance				
• In cold state	Ω	> 0.25 ± 6.5 %		
• In heated state	Ω	> 0.30 ± 6.5 %		
Shock resistance according to IEC 68 Part 2-27	*g*	15		
Degree of protection according to IEC 60529		IP20		
Touch protection according to EN 50274		Finger-safe		
Endurance				
• Mechanical	Operating cycles	10000		
• Electrical	Operating cycles	10000		
Permissible mounting position		Any		

Conductor cross-sections, main circuit, 1 or 2 conductors				
Type		**3RV16 11-1AG14**	**3RV16 11-1CG14**	**3RV16 11-1DG14**
Connection type		**Screw terminals**		
Terminal screw		Pozidriv size 2		
Conductor cross-sections				
• Solid	mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1], max. 4		
• Finely stranded with end sleeve	mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1]		
• Stranded	mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1], max. 4		
Auxiliary switches for blocking the distance protection				
• With defined lateral assignment for blocking distance protection		1 changeover contact (for use as 1 NO or 1 NC)		
• Rated operational voltage U_e (AC voltage)	V	250		
• Rated operational current I_e /AC-14 at U_e = 250 V	A	0.5		
• Rated operational current I_e /AC-14 at U_e = 125 V	A	1		
• Rated operational voltage U_e (DC voltage *L/R* 200 ms)	V	250		
• Rated operational current I_e /DC-13 at U_e = 250 V	A	0.27		
• Rated operational current I_e /DC-13 at U_e = 125 V	A	0.44		
Short-circuit protection for auxiliary circuit				
• Fuse gL/gG	A	10		
• Miniature circuit breaker, C characteristic	A	6 (prospective short-circuit current < 0.4 kA)		
Auxiliary switches for other signaling purposes				

For technical specifications see "Mountable Accessories"

[1] 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.