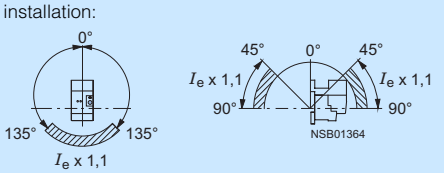
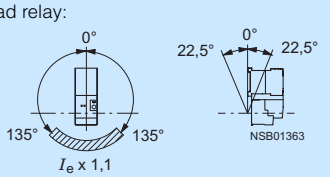
3RU11 for standard applications

Technical specifications

Type		**3RU11 16**	**3RU11 26**	**3RU11 36**	**3RU11 46**
Size		**S00**	**S0**	**S2**	**S3**
Width		**45mm**	**45mm**	**55mm**	**70mm**
General data					
Trips in the event of		Overload and phase failure			
Trip class according to IEC 60947-4-1	CLASS	10			
Phase failure sensitivity		Yes			
Overload warning		No			
Reset and recovery					
• Reset options after tripping		Manual, automatic and remote RESET[1])			
• Recovery time					
- For automatic RESET	min	Depends on the strength of the tripping current and characteristic			
- For manual RESET	min	Depends on the strength of the tripping current and characteristic			
- For remote RESET	min	Depends on the strength of the tripping current and characteristic			
Features					
• Display of operating state on device		Yes, by means of TEST function/switch position indicator slide			
• TEST function		Yes			
• RESET button		Yes			
• STOP button		Yes			
Safe operation of motors with "increased safety" type of protection					
EU type test certificate number according to directive 94/9/EU		DMT 98 ATEX G 001 ⟨Ex⟩ II (2) GD, DMT 98 ATEX G 001 N1			
Ambient temperature					
• Storage/transport	°C	-55 ... + 80			
• Operation	°C	-20 ... + 70			
• Temperature compensation	°C	Up to 60			
• Permissible rated current at					
- Temperature inside control cabinet 60 °C	%	100 (over 60 °C current reduction is not required)			
- Temperature inside control cabinet 70 °C	%	87			
Repeat terminals					
• Coil repeat terminal		Yes	Not required		
• Auxiliary contact repeat terminal		Yes	Not required		
Degree of protection according to IEC 60529		IP20		IP20[2])	
Touch protection according to IEC 61140		Finger-safe			
Shock resistance with sine according to IEC 60068-2-27	*g*/ms	8/10			
Electromagnetic compatibility (EMC) – Interference immunity					
• Conductor-related interference					
- Burst according to IEC 61000-4-4 (corresponds to degree of severity 3)	kV	EMC interference immunity is not relevant for thermal overload relays			
- Surge according to IEC 61000-4-5 (corresponds to degree of severity 3)	kV	EMC interference immunity is not relevant for thermal overload relays			
• Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3)	kV	EMC interference immunity is not relevant for thermal overload relays			
• Field-related interference according to IEC 61000-4-3 (corresponds to degree of severity 3)	V/m	EMC interference immunity is not relevant for thermal overload relays			
Electromagnetic compatibility (EMC) – Emitted interference		EMC interference immunity is not relevant for thermal overload relays			
Resistance to extreme climates – Air humidity	%	100			
Dimensions		See dimensional drawings			
Installation altitude above sea level	m	Up to 2000; above this, please enquire			
Mounting position		The diagrams show the permissible mounting positions for direct mounting and stand-alone installation. For installation in the hatched area, a setting correction of 10% must be implemented. Stand-alone installation:  Contactor + overload relay:  			
Type of mounting		Direct mounting[3])/ stand-alone installation with terminal bracket[4])	Direct mounting/stand-alone installation with terminal bracket[4])		

Type		**3RU11 16**	**3RU11 26**	**3RU11 36**	**3RU11 46**
Size		**S00**	**S0**	**S2**	**S3**
Width		**45 mm**	**45 mm**	**55 mm**	**70 mm**
Main circuit					
Rated insulation voltage U_i (degree of pollution 3)	V	690			1.000
Rated impulse withstand voltage U_{imp}	kV	6			8
Rated operational voltage U_e	V	690			1.000
Type of current					
• Direct current		Yes			
• Alternating current		Yes, frequency range up to 400 Hz			
Set current	A	0.11 ... 0.16 to 9 ... 12	1.8 ... 2.5 to 20 ... 25	5.5 ... 8 to 40 ... 50	18 ... 25 to 80 ... 100
Power loss per unit (max.)	W	3.9 ... 6.6	3.9 ... 6	6 ... 9	10 ... 16.5
Short-circuit protection					
• With fuse without contactor		See Selection and Ordering Data			
• With fuse and contactor		See Technical Specifications (short-circuit protection with fuses/ motor starter protectors for motor feeders)			
Safe isolation between main and auxiliary conducting path according to IEC 60947-1	V	500	690		
Connection for main circuit					
Connection type		**Screw terminals**	**Screw terminals**	**Screw terminals with box terminal**	**Screw terminals with box terminal/rail connection**[1]
Screw terminals					
• Terminal screw		Pozidriv size 2			Allen screw 4 mm
• Tightening torque	Nm	0.8 ... 1.2	2 ... 2.5	3 ... 4.5	4 ... 6
• Conductor cross-sections (min./max.), 1 or 2 conductors					
- Solid	mm^2	2 x (0.5 ... 1.5)[2] 2 x (0.75 ... 2.5)[2] Max. 2 x (1 ... 4)[2]	2 x (1 ... 2.5)[2] 2 x (2.5 ... 6)[2] Max. 2 x (2.5 ... 10)[2]	2 x (0.75 ... 16)	2 x (2.5 ... 16)
- Finely stranded with end sleeve	mm^2	2 x (0.5 ... 1.5)[2] 2 x (0.75 ... 2.5)[2]	2 x (1 ... 2.5)[2] 2 x (2.5 ... 6)[2]	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)[2] 2 x (0.75 ... 2.5)[2] Max. 2 x (1 ... 4)[2]	2 x (1 ... 2.5)[2] 2 x (2.5 ... 6)[2] Max. 2 x (2.5 ... 10)[2]	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 ... 3) 1 x (18 ... 1)	2 x (10 ... 1/0) 1 x (10 ... 2/0)
- Ribbon cable conductors (number x width x circumference)	mm	--		2 x (6 x 9 x 0.8)	2 x (6 x 9 x 0.8)
Busbar connection					
• Terminal screw		--			M6 x 20
• Tightening torque	Nm	--			4 ... 6
• Conductor cross-sections (min./max.)					
- Finely stranded with cable lug	mm^2	--			2 x 70
- Stranded with cable lug	mm^2	--			3 x 70
- AWG conductors, solid or stranded, with cable lug	AWG	--			2/0
- With connecting bar (max. width)	mm	--			12
Connection type		**Cage Clamp terminals**			
Cage Clamp terminals					
• Conductor cross-sections (min./max.)					
- Solid	mm^2	2 x (0.25 ... 2.5)	--		
- Finely stranded without end sleeve	mm^2	2 x (0.25 ... 2.5)	--		
- Finely stranded with end sleeve	mm^2	2 x (0.25 ... 1.5)	--		
- Stranded	mm^2	--	--		
- AWG conductors, solid or stranded	AWG	2 x (24 ... 14)	--		

Footnotes for page 5/70:

1) Remote RESET in combination with the corresponding accessories.

2) Terminal compartment: Degree of protection IP00.

3) The 3RU11 16 overload relay with Cage Clamp terminal can only be installed as a stand-alone installation.

4) For screw and snap-on mounting TH 35 standard mounting rail; size S3 also for TH 75 standard mounting rail. For more detailed information about terminal brackets, please see Accessories, Technical Specifications.

Footnotes for page 5/71:

1) The box terminal is removable. Rail and cable lug connections are possible if the box terminal is removed.

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.

3RU1 Thermal Overload Relays

3RU11 for standard applications

Type		3RU11 16	3RU11 26	3RU11 36	3RU11 46
Size		S00	S0	S2	S3
Width		45mm	45mm	55mm	70mm
Auxiliary circuit					
Number of NO contacts		1			
Number of NC contacts		1			
Auxiliary contacts – assignment		1 NO for the signal "tripped", 1 NC for disconnecting the contactor			
Rated insulation voltage U_i (degree of pollution 3)	V	690			
Rated impulse withstand voltage U_{imp}	kV	6			
Contact rating of the auxiliary contacts					
• NC contact with alternating current AC-14/AC-15, rated operational current I_e at U_e:					
- 24 V	A	4			
- 120 V	A	4			
- 125 V	A	4			
- 230 V	A	3			
- 400 V	A	2			
- 600 V	A	0.6			
- 690 V	A	0.5			
• NO contact with alternating current AC-14/AC-15, rated operational current I_e at U_e:					
- 24 V	A	3			
- 120 V	A	3			
- 125 V	A	3			
- 230 V	A	2			
- 400 V	A	1			
- 600 V	A	0.6			
- 690 V	A	0.5			
• NC contact, NO contact with direct current DC-13, rated operational current I_e at U_e:					
- 24 V	A	1			
- 60 V	A	[1]			
- 110 V	A	0.22			
- 125 V	A	0.22			
- 220 V	A	0.11			
• Continuous thermal current I_{th}	A	6[2]			
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes			
Short-circuit protection					
• With fuse					
- gL/gG operational class	A	6			
- Quick	A	10			
• With miniature circuit breaker (C characteristic)	A	6			
Safe isolation between main and auxiliary conducting path according to IEC 60947-1	V	415			
CSA, UL, UR rated data					
Auxiliary circuit – switching capacity		B600, R300			
Connection of the auxiliary circuit					
Connection type		**Screw terminals**			
• Terminal screw		Pozidriv size 2			
• Tightening torque	Nm	0.8 ... 1.2			
• Conductor cross-sections (min./max.), 1 or 2 conductors					
- Solid	mm^2	2 x (0.5 ... 1.5)[3], 2 x (0.75 ... 2.5)[3]			
- Finely stranded without end sleeve	mm^2	--			
- Finely stranded with end sleeve	mm^2	2 x (0.5 ... 1.5)[3], 2 x (0.75 ... 2.5)[3]			
- Stranded	mm^2	2 x (0.5 ... 1.5)[3], 2 x (0.75 ... 2.5)[3]			
- AWG conductors, solid or stranded	AWG	2 x (18 ... 14)			
Connection type		**Cage Clamp terminals**			
• Conductor cross-sections (min./max.)					
- Solid		2 x (0.25 ... 2.5)			
- Finely stranded without end sleeve		2 x (0.25 ... 2.5)			
- Finely stranded with end sleeve		2 x (0.25 ... 1.5)			
- Stranded		--			
- AWG conductors, solid or stranded		2 x (24 ... 14)			

[1] On request.

[2] Up to $I_k \leq$ 0.5 kA; $\leq$ 260 V.

[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.

Short-circuit protection with fuses/motor starter protectors for motor feeders

With short-circuit currents up to 50 kA at 50/60 Hz 690 V AC
Permissible short-circuit protection fuse for motor starters comprising overload relay and contactor, type of coordination 2[1)]

Overload relay Setting range	3 kW ≙ 3RT10 15 $I_{e\,max}$ = 7 A (at 50 Hz 400 V AC)			4 kW ≙ 3RT10 16 $I_{e\,max}$ = 9 A (at 50 Hz 400 V AC)			5.5 kW ≙ 3RT10 17 $I_{e\,max}$ = 12 A (at 50 Hz 400 V AC)			UL-listed fuses RK5	Motor starter protector for starter combinations at I_q = 50 kA/400 V AC
A	gL/gG	aM	BS 88	gL/gG	aM	BS 88	gL/gG	aM	BS 88	A	
Size S00											
0.11 ... 0.16	0.5	--	--	0.5	--	–	0.5	–	–	1	--
0.14 ... 0.2	1	--	--	1	--	–	1	–	–	1	3RV13 21-0BC10
0.18 ... 0.25	1	--	--	1	--	–	1	–	–	1	3RV13 21-0CC10
0.22 ... 0.32	1.6	--	2	1.6	--	2	1.6	–	2	1	3RV13 21-0DC10
0.28 ... 0.4	2	--	2	2	--	2	2	–	2	1.6	3RV13 21-0EC10
0.35 ... 0.5	2	--	2	2	--	2	2	–	2	2	3RV13 21-0FC10
0.45 ... 0.63	2	--	4	2	--	4	2	–	4	2.5	3RV13 21-0GC10
0.55 ... 0.8	4	--	4	4	--	4	4	–	4	3	3RV13 21-0HC10
0.7 ... 1	4	--	6	4	--	6	4	–	6	4	3RV13 21-0JC10
0.9 ... 1.25	4	--	6	4	--	6	4	–	6	5	3RV13 21-0KC10
1.1 ... 1.6	6	--	10	6	--	10	6	–	10	6	3RV13 21-1AC10
1.4 ... 2	6	--	10	6	--	10	6	–	10	8	3RV13 21-1BC10
1.8 ... 2.5	10	--	10	10	--	10	10	–	10	10	--
2.2 ... 3.2	10	--	16	10	--	16	10	–	16	12	--
2.8 ... 4	16	--	16	16	--	16	16	–	16	16	--
3.5 ... 5	20	6	20	20	6	20	20	6	20	20	--
4.5 ... 6.3	20	6	20	20	6	20	20	6	20	25	--
5.5 ... 8	20	10	20	20	10	20	20	10	20	30	--
7 ... 10	--	--	--	20	16	20	20	16	20	40	--
9 ... 12	--	--	--	--	--	--	20	16	25	45	--

Overload relay Setting range	5.5 kW ≙ 3RT10 24 $I_{e\,max}$ = 12 A (at 50 Hz 400 V AC)			7.5 kW ≙ 3RT10 25 $I_{e\,max}$ = 17 A (at 50 Hz 400 V AC)			11 kW ≙ 3RT10 26 $I_{e\,max}$ = 25 A (at 50 Hz 400 V AC)			UL-listed fuses RK5	Motor starter protector for starter combinations at I_q = 50 kA/400 V AC
A	gL/gG	aM	BS 88	gL/gG	aM	BS 88	gL/gG	aM	BS 88	A	
Size S0											
1.8 ... 2.5	10	–	10	10	–	10	10	–	10	10	3RV13 21-1CC10
2.2 ... 3.2	10	–	16	10	–	16	10	–	16	12	3RV13 21-1DC10
2.8 ... 4	16	–	16	16	–	16	16	–	16	16	3RV13 21-1EC10
3.5 ... 5	20	6	20	20	6	20	20	6	20	20	3RV13 21-1FC10
4.5 ... 6.3	20	6	25	20	6	25	20	6	25	25	3RV13 21-1GC10
5.5 ... 8	25	10	25/32[2)]	25	10	25/32[2)]	25	10	32	30	3RV13 21-1HC10
7 ... 10	25	16	25/32[2)]	25	16	25/32[2)]	32	16	35	40	3RV13 21-1JC10
9 ... 12.5	25	20	25/32[2)]	25	20	25/32[2)]	35	20	35	45	3RV13 21-1KC10
11 ... 16	25	20	25/32[2)]	25	20	25/32[2)]	35	20	35	60	3RV13 21-4AC10
14 ... 20	--	--	--	25	20	25/32[2)]	35	20	35	80	3RV13 21-4BC10
17 ... 22	--	--	--	--	--	--	35	20	35	80	3RV13 21-4CC10
20 ... 25	--	--	--	--	--	--	35	20	35	100	--

For type of coordination 1[1)] see short-circuit protection of the contactors without overload relay under "Controls - Contactors and Contactor Assemblies".

1) Assignment and short-circuit protective devices according to IEC 60947-4-1:
Type of coordination 1: the contactor or starter must not endanger persons or the installation in the event of a short-circuit. They do not need to be suitable for further operation without repair and the renewal of parts.
Type of coordination 2: the contactor or starter must not endanger persons or the installation in the event of a short-circuit. This must be suitable for further operation. There is a risk of contact welding.

2) At max. 415 V.

3RU1 Thermal Overload Relays

3RU11 for standard applications

Short-circuit protection with fuses/motor starter protectors for motor feeders

With short-circuit currents up to 50 kA at 50/60 Hz 690 V AC
Permissible short-circuit protection fuse for motor starters comprising overload relay and contactor, type of coordination 2[1)]

Overload relays Setting range	15 kW ≙ 3RT10 34 $I_{e\,max}$ = 32 A (at 50 Hz 400 V AC)			18.5 kW ≙ 3RT10 35 $I_{e\,max}$ = 40 A (at 50 Hz 400 V AC)			22 kW ≙ 3RT10 36 $I_{e\,max}$ = 50 A (at 50 Hz 400 V AC)			UL-listed fuses RK5	Motor starter protector for starter combinations at I_q = 50 kA/400 V AC
A	gL/gG	aM	BS 88	gL/gG	aM	BS 88	gL/gG	aM	BS 88	A	
Size S2											
5.5 ... 8	25	10	25	25	10	25	25	10	25	30	--
7 ... 10	32	16	32	32	16	32	32	16	32	40	--
9 ... 12.5	35	16	35	35	16	35	35	16	35	50	--
11 ... 16	40	20	40	40	20	40	40	20	40	60	--
14 ... 20	50	25	50	50	25	50	50	25	50	80	--
18 ... 25	63	32	63	63	32	63	63	32	63	100	3RV13 31-4DC10
22 ... 32	63	35	63	63	35	63	80	35	80	125	3RV13 31-4EC10
28 ... 40	63	50	63	63	50	63	80	50	80	150	3RV13 31-4FC10
36 ... 45	--	--	--	63	50	80	80	50	80	175	3RV13 31-4GC10
40 ... 50	--	--	--	--	--	--	80	50	80	200	3RV13 31-4HC10

Overload relays Setting range	30 kW ≙ 3RT10 44 $I_{e\,max}$ = 65 A (at 50 Hz 400 V AC)			37 kW ≙ 3RT10 45 $I_{e\,max}$ = 80 A (at 50 Hz 400 V AC)			45 kW ≙ 3RT10 46 $I_{e\,max}$ = 95 A (at 50 Hz 400 V AC)			UL-listed fuses RK5	Motor starter protector for starter combinations at I_q = 50 kA/400 V AC
A	gL/gG	aM	BS 88	gL/gG	aM	BS 88	gL/gG	aM	BS 88	A	
Size S3											
18 ... 25	63	32	63	63	32	63	63	32	63	100	--
22 ... 32	80	35	80	80	35	80	80	35	80	125	--
28 ... 40	80	50	80	80	50	80	80	50	80	150	--
36 ... 50	125	50	125	125	50	125	125	50	125	200	--
45 ... 63	125	63	125	160	63	160	160	63	160	250	3RV13 41-4JC10
57 ... 75	--	--	--	160	80	160	160	80	160	300	3RV13 41-4KC10
70 ... 90	--	--	--	--	--	--	160	100	160	350	3RV13 41-4LC10
80 ... 100	--	--	--	--	--	--	160	100	160	350	3RV13 41-4MC10

For type of coordination 1[1)] see short-circuit protection of the contactors without overload relay under "Controls - Contactors and Contactor Assemblies".

[1)] Assignment and short-circuit protective devices according to IEC 60947-4-1:
Type of coordination 1: the contactor or starter must not endanger persons or the installation in the event of a short-circuit. They do not need to be suitable for further operation without repair and the renewal of parts.
Type of coordination 2: the contactor or starter must not endanger persons or the installation in the event of a short-circuit. This must be suitable for further operation. There is a risk of contact welding.