Selection and ordering data

Features and technical characteristics
- Auxiliary contacts: 1 NO + 1 NC
- Manual/automatic RESET
- Switching position indication
- CLASS 10
- TEST function
- STOP button
- Phase failure sensitivity
- Sealable cover: optional in S00, S0 & S2. Integrated in S3

Ordering information

- Replace the (••) with the letter Number combination from the Terminal types I table
- Replace the (††) with the letter Number combination from the Terminal types II table
- For description, see page 3/8
- For technical data, see pages 3/12-3/15
- For circuit diagrams, see page 3/15
- For dimension drawings, see page 3/16-3/17.

•• Terminal Types I

Type	Mounting Type	Ltr
Screw	Direct to Contactor	B0
Screw[1]	Stand Alone	B1
Spring[2]	Direct to Contactor	C0
Spring[1] [2]	Stand Alone	C1
Ring Lug	Direct to Contactor	J0

†† Terminal Types II

Type	Mounting Type	Ltr
Screw	Direct to Contactor	B0
Screw [4]	Stand Alone	B1
Spring [3]	Direct to Contactor	D0
Spring [3] [4]	Stand Alone	D1


3RU2116-1GB0


3RU2116-1GC0


3RU2126-4NB0


3RU2136-4RB1


3RU2146-4JB0

Thermal Overload Relays up to 40A Frame Size S00 and S0 ••

Setting Range A	Order No.	Setting Range A	Order No.	Weight approx. (screw/ spring) kg
Frame Size S00: For mounting directly to 3RT201 contactors or for stand-alone installation				
0.11 - 0.16	**3RU2116-0A••**	1.4 - 2	**3RU2116-1B••**	0.13/0.15
0.14 - 0.2	**3RU2116-0B••**	1.8 - 2.5	**3RU2116-1C••**	
0.18 - 0.25	**3RU2116-0C••**	2.2 - 3.2	**3RU2116-1D••**	
0.22 - 0.32	**3RU2116-0D••**	2.8 - 4	**3RU2116-1E••**	
0.28 - 0.4	**3RU2116-0E••**	3.5 - 5	**3RU2116-1F••**	0.13/0.15
0.35 - 0.5	**3RU2116-0F••**	4.5 - 6.3	**3RU2116-1G••**	
0.45 - 0.63	**3RU2116-0G••**	5.5 - 8	**3RU2116-1H••**	
0.55 - 0.8	**3RU2116-0H••**	7 - 10	**3RU2116-1J••**	
0.7 - 1	**3RU2116-0J••**	9 - 12.5	**3RU2116-1K••**	0.13/0.15
0.9 - 1.25	**3RU2116-0K••**	11 - 16	**3RU2116-4A••**	
1.1 - 1.6	**3RU2116-1A••**			
Frame Size S0: For mounting directly to 3RT202 contactors or for stand-alone installation				
1.8 - 2.5	**3RU2126-1C••**	11 - 16	**3RU2126-4A••**	0.16/0.22
2.2 - 3.2	**3RU2126-1D••**	14 - 20	**3RU2126-4B••**	
2.8 - 4	**3RU2126-1E••**	17 - 22	**3RU2126-4C••**	
3.5 - 5	**3RU2126-1F••**	20 - 25	**3RU2126-4D••**	
4.5 - 6.3	**3RU2126-1G••**	23 - 28	**3RU2126-4N••**	0.16/0.22
5.5 - 8	**3RU2126-1H••**	27 - 32	**3RU2126-4E••**	
7 - 10	**3RU2126-1J••**	30 - 36	**3RU2126-4P••**	
9 - 12.5	**3RU2126-1K••**	34 - 40	**3RU2126-4F••**	

Thermal Overload Relays up to 100A Frame Size S2 and S3 ††

Setting Range A	Order No.	Setting Range A	Order No.	Weight approx. (screw/ spring) kg
Frame Size S2: For mounting directly to 3RT203 contactors [4]				
22 - 32	**3RU2136-4E††**	47 - 57	**3RU2136-4Q††**	0.34
28 - 40	**3RU2136-4F††**	54 - 65	**3RU2136-4J††**	
36 - 45	**3RU2136-4G††**	62 - 73	**3RU2136-4K††**	
40 - 50	**3RU2136-4H††**	70 - 80	**3RU2136-4R††**	
Frame Size S3: For mounting directly to 3RT104 contactors [4]				
28 - 40	**3RU2146-4F††**	57 - 75	**3RU2146-4K††**	
36 - 50	**3RU2146-4H††**	70 - 90	**3RU2146-4L††**	
45 - 63	**3RU2146-4J††**	80 - 100[5]	**3RU2146-4M††**	

[1] Not available for size S0 3RU212 with current setting range below 14 A.

[2] Size S00 and S0: main and auxiliary conductor terminals are spring-type.

[3] Size S2 and S3 auxiliary terminals are spring-type only. Main conductor terminals are screw.

[4] 3RU Overloads in S2 and S3 frame are available preassembled with a terminal bracket for standalone mounting. S2 and S3 overloads can also be customer assembled to the terminal bracket (see Accessories).

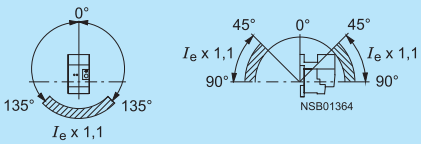
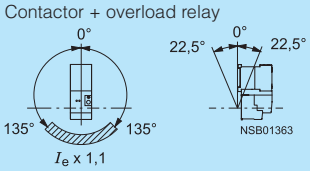
[5] For overload relays > 100A, see electronic overload relays.

Accessories

	Design		for type Size	Order No.	Weight approx kg
Terminal brackets for stand-alone installation [1]					
 3RU29 36-3AA01	For separate mounting of the overload relay; panel mount or snapped onto 35 mm standard mounting rail, size S3 also for 75 mm standard mounting rail	*Screw terminals*	S00 S0 S2 S3	**3RU29 16-3AA01** **3RU29 26-3AA01** **3RU29 36-3AA01** **3RU29 46-3AA01**	0.04 0.05 0.18 0.28
		Spring Loaded terminals	S00 S0	**3RU29 16-3AC01** **3RU29 26-3AC01**	0.04 0.06
Mechanical RESET					
 3RU29 00-1A with pushbutton, and reset extension	**Resetting plunger, holder, and former overload reset adapter**		S00 to S3	**3RU29 00-1A**	0.038
	Pushbuttons with extended stroke IP 65 Ø 22 mm, 12 mm hub		S00 to S3	**3SU1200-0FB10-0AA0**	0.020
	Extension plungers For compensation of the distance bewteen the pushbutton and the unlatching button of the relay		S00 to S3	**3SU1900-0KG10-0AA0**	0.004
	Complete mechanical reset assembly		S00 to S3	**3SU1200-0KB10-0AA0 + 3RU1900-1A**	
Cable release with holder for RESET					
 3RU29 00-1	For drilled hole Ø 6.5 mm in the control panel max. control panel thickness 8 mm	Length 400 mm Length 600 mm	S00 to S3 S00 to S3	**3RU29 00-1B** **3RU29 00-1C**	0.063 0.073
Module for remote RESET, electrical					
 3RU19 00-2A.71	Operating range 0.85 to 1.1 × U_s Power consumption AC 80 VA, DC 70 W ON period 0.2 s to 4 s AC/DC 24 V to 30 V AC/DC 110 V to 127 V AC/DC 220 V to 250 V		S00 to S3	**3RU19 00-2AB71** **3RU19 00-2AF71** **3RU19 00-2AM71**	0.066 0.066 0.066
Terminal cover					
 3RT1946-4EA1	Cover for cable lug and bar connection		S3	**3RT19 46-4EA1**	0.040
	Cover for box terminals		S2 S3	**3RT29 36-4EA2** **3RT29 46-4EA2**	0.020 0.025
Sealable covers					
 3RV29 08-0P	For covering the rotary setting dials. Order in multiples of 10.		S00 to S2	**3RV29 08-0P**	0.100
Tool for opening Spring Loaded terminal connections					
 3RA2908-1A	Suitable up to a For all SIRIUS devices with spring-type terminals • Length: approx. 200 mm; 3.0 × 0.5 mm (green)			**3RA2908-1A**	0.045

[1] The accessories are identical to those of the 3RB30/3RB31 solid-state overload relays.

Technical data

			3RU21 16	3RU21 26	3RU21 36	3RU21 46
Type						
Size			**S00**	**S0**	**S2**	**S3**
Width			**45 mm**	**45 mm**	**55 mm**	**70 mm**
General data						
Release on			overload or phase failure			
Trip class	acc. to IEC 60947-4-1	CLASS	10		10, 10A	10
Phase failure sensitivity			Yes			
Overload warning			No			
Resetting and recovery						
Reset possibilities after tripping			Manual, remote and automatic RESET [1]			
Recovery time	on automatic RESET	min	depending on the level of tripping current and the tripping characteristic			
	on manual RESET	min	depending on the level of tripping current and the tripping characteristic			
	on remote RESET	min	depending on the level of tripping current and the tripping characteristic			
Features						
Indication of status on the device			Yes, using the slide "TEST function/ON-OFF indicator"			
TEST function			Yes			
RESET button			Yes			
STOP button			Yes			
Safe operation of motors with "increased safety" type of protection						
EC type test certificate number according to directive 94/9/EC (ATEX)			DMT 98 ATEX G 001 Ⓔx II (2) GD		On request	
Ambient temperatures						
Storage/transport		°C	–55 to +80			–55 to +80
Operation		°C	–40 to +70			–40 to +70
Temperature compensation		°C	up to +60			up to +60
Permissible rated current at	Internal cabinet temperature of 60 °C	%	100 (over +60°C, the current must be reduced)			100 (over +60°C, current reduction is not required)
	Internal cabinet temperature of 70 °C	%	87			87
Repeat terminals						
Repeat coil terminal			Yes	Not required		
Auxiliary switch repeat terminal			Yes	Not required		
Degree of protection	acc. to IEC 60529		IP 20			IP 20 [2]
Touch protection	acc. to IEC 61140		Finger-safe for vertical contact from the front Finger-safe only with optional terminal covers			
Shock resistance (sine)	acc. to IEC 60068-2-27	*g*/ms	15/11 (auxiliary contacts 95/96 and 97/98: 8g/11ms)			8/10
EMC						
• Interference immunity			Not relevant			
• Emitted interference			Not relevant			
Resistance to extreme climates (humidity)		%	90			100
Dimensions			see dimensional drawings			
Site altitude		m	Up to 2000; above this on request			
Installation angle			The permissible installation angles for mounting onto contactors and individual mounting are shown in the diagrams. For mounting in the shaded area, adjustment compensation of 10 % is necessary. Individual mounting  Contactor + overload relay  			
Type of installation/mounting			Mounting onto contactor/stand-alone installation with terminal support (For screw and snap-on mounting onto TH 35 standard mounting rail)			Direct mounting/ stand-alone installation with terminal support (For screw and snap-on mounting onto TH34 standard mounting rail size; size S3 also for TH 75 standard mounting rail."

1) Remote RESET in combination with the appropriate accessories.
2) Terminal compartment: IP 00 degree of protection.

Technical data

Type			**3RU21 16**	**3RU21 26**	**3RU21 36**	**3RU21 46**
Size			**S00**	**S0**	**S2**	**S3**
Width			**45 mm**	**45 mm**	**55 mm**	**70 mm**
Main circuit						
Rated insulation voltage U_i (pollution degree 3)		V	690			1000
Rated impulse withstand voltage U_{imp}		kV	6			8
Rated operational voltage U_e		V	690			1000
Type of current	DC AC		Yes Yes, frequency range up to 400 Hz			
Current setting		A	0.11– 0.16 to 11 – 16	1.8 – 2.5 to 34 – 40	11-16 up to 70-80	18 – 25 to 80 – 100
Power loss per device (max.)		W	4.1...6.3	6.2...7.5	8...14	10 to 16.5
Short-circuit protection	With fuse without contactor		See selection and ordering data			
	With fuse and contactor		See technical data (short-circuit protection with fuses / circuit-breaker for motor feeders)			
Protective separation between main and auxiliary current paths Acc. to IEC 60947-1,		V				
• Screw terminals or ring terminal lug connections			440	690: Setting ranges ≤ 25 A 440: Setting ranges > 25 A	690	690
• Spring - type terminals			440		690	
Connection of the main circuit						
Type of connection			Screw terminals			Screw connection with box terminal [2]/ bar connection
Screw terminals						
• Terminal screw			M3, Pozidriv size 2	M4, Pozidriv size 2	M6, Pozidriv size 2	Hexagon socket screw 4 mm
• Operating devices		mm	Ø5 ... 6	Ø5 ... 6	Ø5 ... 6	Ø5 ... 6
• Tightening torque		Nm	0.8 to 1.2	2 to 2.5	3 to 4.5	4 to 6
• Conductor cross-section (min./max.), 1 or 2 wires	Solid or stranded	mm^2	2 × (0.5 to 1.5), 2 × (0.75 to 2.5), max. 2 x 4	2 × (1 to 2.5), 2 × (2.5 to 6), max. 2 × (2.5 to 10)	2x(2.5 to 35) 1x(2.5 to 50)	2 × (2.5 to 16)
	Finely stranded with end sleeve	mm^2	2 × (0.5 to 1.5), 2 × (0.75 to 2.5)	2 × (1 to 2.5), 2 × (2.5 to 6) max. 1 x 10	2 x (1 to 25) 1 x (1 to 35)	2 × (2.5 to 35), 1 × (2.5 to 50)
	AWG conductor con., solid or stranded	AWG	2 x (20 ... 16) 2 x (18 ... 14) 2 x 12	2 x (16 ... 12) 2 x (14 ... 8)	2 x (18 to 2) 1 x (18 to 1)	2 × (10 to 1/0), 1 × (10 to 2/0)
	Ribbon cable (No. × width × thickness)	mm	–	–	–	2 × (6 × 9 × 0.8)
Bar connection						
• Terminal screw			–			M 6 × 20
• Tightening torque		Nm	–			4 to 6
• Conductor cross-section (min./max.)	Finely stranded with cable lug	mm^2	–			2 × 70
	Stranded with cable lug	mm^2	–			2 × 70
	AWG conductor connections, solid or stranded with cable lug	AWG	–			2/0
	With connecting bars (max. width)	mm	–			12
Auxiliary circuit						
Main contacts: Number of NO contacts Number of NC contacts			1 1			
Assignment of auxiliary contacts			1 NO for the signal "tripped"; 1 NC for disconnecting the contactor			
Rated insulation voltage U_i (pollution degree 3)		V	690			
Rated impulse withstand voltage U_{imp}		kV	6			
Switching capacity of auxiliary contacts						
NC for AC 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	0.75			
	• 690 V	A	0.75			

1) For conductor cross-sections for Cage Clamp terminals, see "Connection of the auxiliary circuit."

2) The box terminal can be removed. After the box terminal has been removed, bar connection and lug connection is possible.

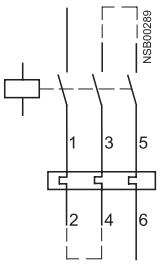
Technical data

Type			**3RU21 16**	**3RU21 26**	**3RU21 36**	**3RU11 46**
Size			**S00**	**S0**	**S2**	**S3**
Width			**45 mm**	**45 mm**	**55 mm**	**70 mm**
NO for AC	Rated operational current I_e at U_e:					
AC-14/AC-15	• 24 V	A	3			3
	• 120 V	A	3			3
	• 125 V	A	3			3
	• 230 V	A	2			2
	• 400 V	A	1			1
	• 600 V	A	0.75			0.6
	• 690 V	A	0.75			0.5
NC, NO for DC	Rated operational current I_e at U_e:					
DC-13	• 24 V	A	1			1
	• 60 V	A	On request			On request
	• 110 V	A	0.22			0.22
	• 125 V	A	0.22			0.22
	• 220 V	A	0.11			0.11
Conventional thermal current I_{th}		A	6			6
Contact reliability	(suitable for PLC; 17 V, 5 mA)		Yes			Yes
Short-circuit protection						
With fuse	Utilization cat. gL/gG	A	6			
	fast	A	10			
With miniature circuit-breaker (C characteristic)		A	6[1])			
Reliable operational voltage for protective separation between auxiliary current paths	acc. to IEC 60947-1	V	440			
Connection of the auxiliary circuit						
Type of connection			Screw terminal or Cage Clamp terminal			
Connection characteristics			Screw terminals			Cage Clamp terminals
• Terminal screw			Pozidrive Size 2			–
• Tightening torque		Nm	0.8 to 1.2			
• Conductor cross-sections (min./max.), 1 or 2 wires	Solid or stranded	mm^2	2 × (0.5 to 1.5), 2 × (0.75 to 2.5)			2 × (0.25 to 2.5)
	Finely stranded without end sleeve	mm^2	–			2 × (0.25 to 2.5)
	Finely stranded with end sleeve	mm^2	2 × (0.5 to 1.5), 2 × (0.75 to 2.5)			2 × (0.25 to 1.5)
	AWG conductor connections, solid or stranded	AWG	2 x (20 to 16) 2 x (18 to 14)			2 × (20 to 14)

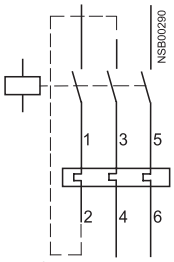
1) Up to $I_k \leq 0.5$ kA; ≤ 260 V.

Circuit diagrams

Protection of DC motors

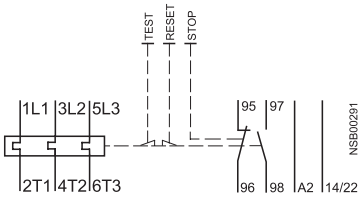


1-pole

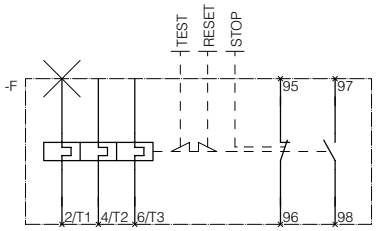


2-pole

3RU21 16 overload relay



3RU21 26 to 3RU21 46 overload relays

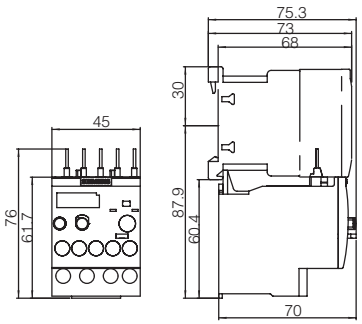


Dimension drawings

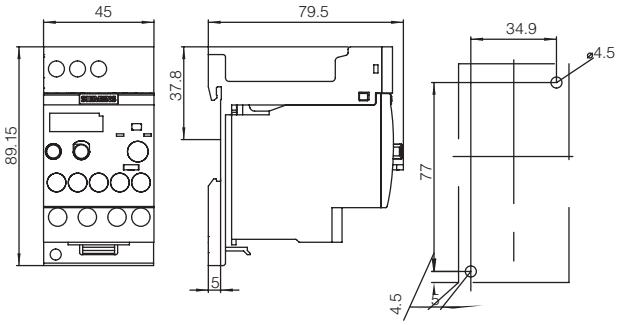
Screw connection

Lateral clearance to grounded components: at least 6 mm.

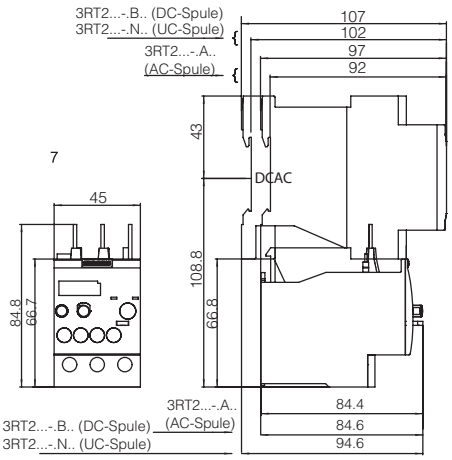
3RU21 16-..B0
Size S00



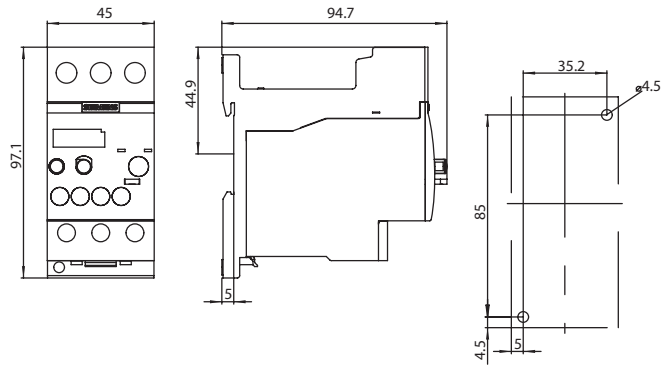
3RU21 16-..B1
Size S00
with adapter for installation as a single unit with accessories



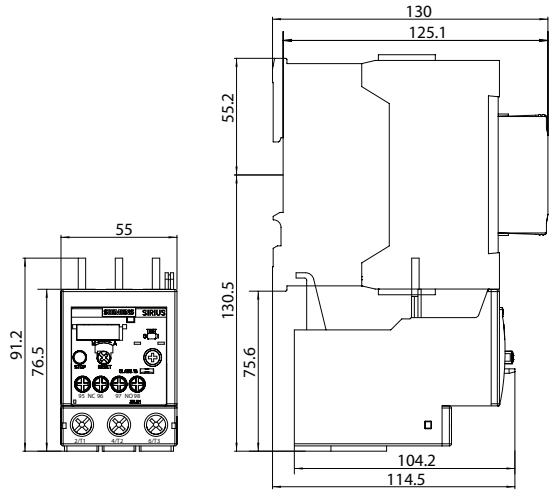
3RU21 26-..B.
Size S0



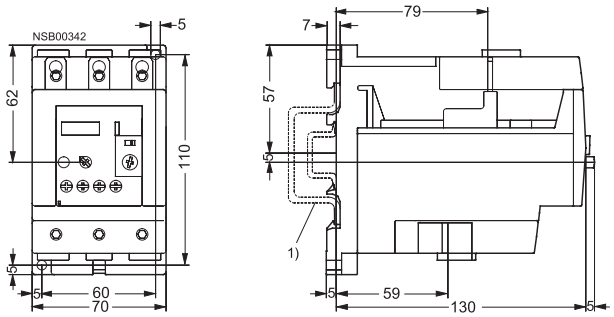
3RU21 26-..B1
Size S0
with adapter for installation as a single unit



3RU21 36-..B.
Size S2
with adapter for installation as a single unit



3RU21 46-..B.
Size S3
with adapter for installation as a single unit



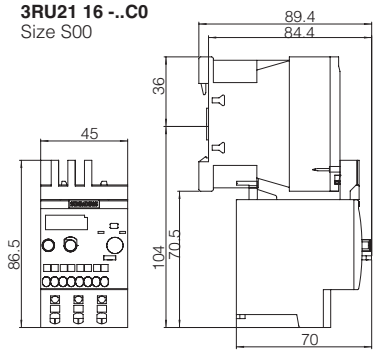
1) For mounting on 35 mm standard mounting rail (15 mm deep) acc. to EN 50 022 or 75 mm standard mounting rail acc. to EN 50023

Dimension drawings "Contactor with built-on overload relay" see contactors and contactor combinations.

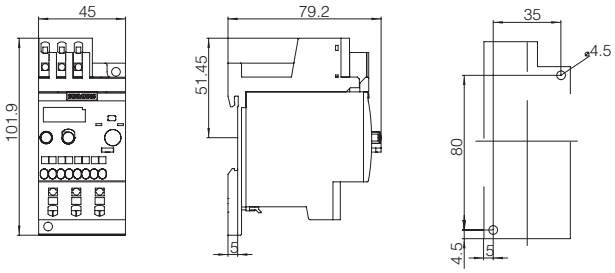
Dimension drawings

Spring Loaded terminals
Lateral clearance to grounded components: at least 6 mm.

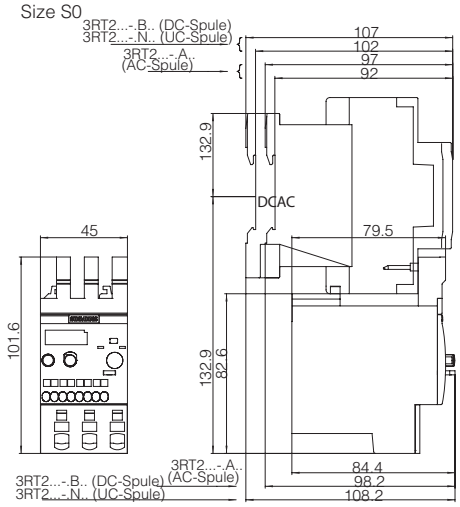
3RU21 16 -..C0
Size S00



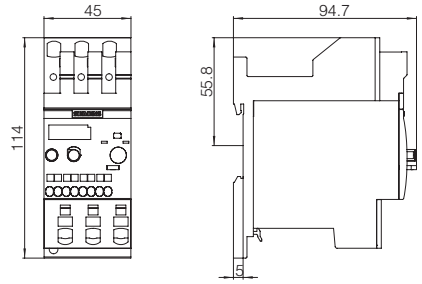
3RU21 16 -..C1
Size S00 with with adapter for installation as a single unit



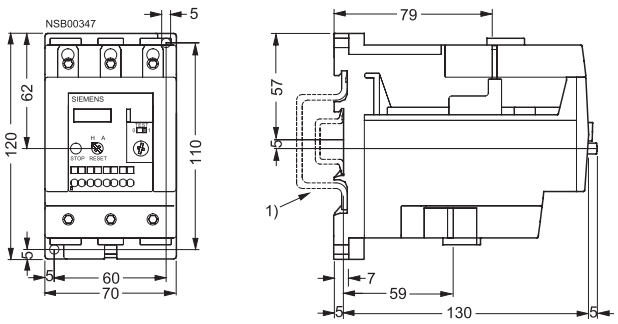
3RU21 26-..C0
Size S0



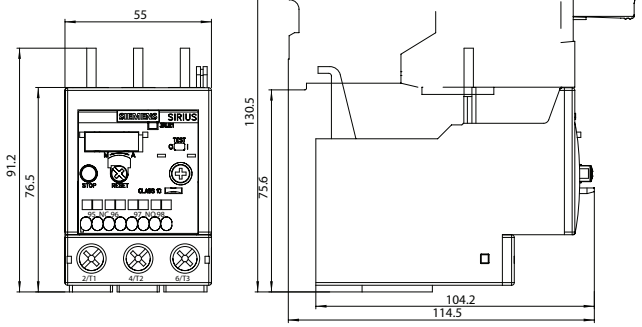
3RU21 26-..C1
Size S0 with adapter for installation as a single unit



3RU11 46-..D.
Size S3



3RU2136-..D.
Size S2



1) For mounting on 35 mm standard mounting rail (15 mm deep) acc. to EN 50 022 or 75 mm standard mounting rail acc. to EN 50 023

Dimension drawings "Contactor with built-on overload relay" see contactors and contactor combinations.