

Typprüfbescheinigung / Type Test Certificate

Erzeugnis / Product: **Contactors, Reversing Combinations, Wye Delta Combinations**

Typ: **3RT204, 3RT234,**
Type: **3RT244, 3RT254,**
3RA234, 3RA244,
3RA27, 3RA29

Tech. Daten: **$U_{e \max} = 1000 \text{ V}$, $U_{\text{imp}} = 8 \text{ kV}$**
Specification: **$I_{e \max} = 160 \text{ A}$, $I_{\text{th}} = 160 \text{ A}$**

Hersteller: **Siemens AG**
Manufacturer: **DF CP**

Art der Prüfung / Type of test: **Type Test**

Prüfer / **Mr. Stadlbauer**
Tested by:

Labor / **Type Test Center Siemens AG, Amberg**
Laboratory: **DAkS accredited Testing Laboratory**

Angewandte Prüfbestimmungen / Test specifications applied:

IEC 60947-4-1:2009-09 + A1:2012-07

IEC 60947-5-1:2003-11 + A1:2009-04

Durchgeführte Prüfungen / Tests conducted:

IEC 60947-4-1: Test Sequences I, II, III, IV, V, EMC, Annex F

IEC 60947-5-1: Test Sequences I, II, III, IV, V, VI

Prüfergebnis / Test results:

All requirements of the test specification are met.

Bemerkungen / Remarks: **Issued: 2017-02-16**

Index a, dated 2019-01-29: Test report 17060IR01 added.

i.V.


DF CP R&D VC Mr. Hartinger

i.V.


DF CP R&D PMM Mr. Royer

SIEMENS AG

Digital Factory

Dr. Jan Mrosik, CEO

Siemens Aktiengesellschaft: Chairman of the Supervisory Board: Jim Hagemann Snaube;
Managing Board: Joe Kaeser, Chairman, President and Chief Executive Officer; Roland Busch, Lisa Davis, Klaus Helmrich, Janina Kugel, Cedrik Neike,
Michael Sen, Ralf P. Thomas;

Registered offices: Berlin and Munich, Germany; Commercial registries: Berlin Charlottenburg, HRB 12300, Munich, HRB 6684; WEEE-Reg.-No. DE 23691322
Formular: February 2018

General

Type designation: *3RT2.4, 3RA234, 3RA244, 3RA27, 3RA29*

Manufacturer: *Siemens AG, DF CP
Werner-von-Siemens-Str. 48, 92220 Amberg, Germany*

Production site: *Siemens AG, DF CP
Werner-von-Siemens-Str. 29, 93413 Cham, Germany*

Nomenclature breakdown

3RT20 45 -1 A P0 0 ..
I II III IV V VI VII

I. Basic Type

3RT20 - motor contactor, 3 NO main contacts
3RT23 - AC-1 contactor, 4 NO main contacts
3RT24 - AC-1 contactor, 3 NO main contacts
3RT25 - motor contactor, 2 NO + 2 NC main contacts

II. Size S3

Motor contactor 3RT20., 3 pole

45 - 37 kW
46 - 45 kW
47 - 55 kW

AC-1 contactor 3RT23., 4 pole

44 - 690 V / 110 A
46 - 690 V / 140 A
48 - 690 V / 160 A

AC-1 contactor 3RT24., 3 pole

46 - 690 V / 140 A
48 - 690 V / 160 A

Motor contactor 3RT25., 4 pole (2 NO + 2 NC)

44 - 400 V / 30 kW
45 - 400 V / 37 kW

III. Type of terminals

1 - screw terminal for main and auxiliary contacts
3 - screw terminal for main circuit and spring terminals for auxiliary and control circuit
6 - main circuit without box terminal

IV. Operating system

A - AC operating system
C - AC operating system with factory assembled EMC protective unit varistor type
D - DC operating system with factory assembled EMC protective unit varistor type
E - AC operating system with factory assembled EMC protective unit varistor type
K - DC operating system with integrated varistor
N - UC operating system with integrated varistor
P - AC operating system with factory assembled EMC protective unit diode combination
X- type of operating system in combination with VII.

V. Operating voltage

- ... - 24 V/AC through 600 V/AC
- 12 V/DC through 250 V/DC
- 20 V/AC/DC through 280 V/AC/DC

VI. Auxiliary contact arrangements

- 0 - 1 NC and 1 NO contact
- 6 - 2 NC and 2 NO contact (with one lateral mounted auxiliary block on the right side)

VII. Suffix letters and/or numbers specified commercial variations – optional

- 0CC0 - contactor with communication interface
- 0LA2 - DC electronic operating system, provided with an input suitable for direct control of a PLC or for conventional control, programmable
- 4AA0 - 3RT2346 (4NO) with AC-3 ratings
- 0GA0 - contactor for low noise switching
- - any other commercial variation

Accessories:

3RT2946-4GA07	terminal block
3RT1946-4BA31	Star jumper S3
3RA2943-2AA1	wiring kit for reversing starter (screw type)
3RA2943-2AA2	wiring kit for reversing starter (spring type)
3RA2943-2C	wiring kit for star-delta-starter (S3-S3-S2)
3RA2943-2BB1	wiring kit for star-delta-starter, screw type (S3-S3-S3)
3RA2943-2BB2	wiring kit for star-delta-starter, spring type (S3-S3-S3)
3RA2943-3L	1-phase supply terminal
3RT1946-4BB31	parallel connection with terminal, 3-pole
3RA2934-2B	mechanical Interlock
3RT2916-2BE01	breaking delay device, DC 24V
3RT2926-1QT00	LED block for indicating contactor function
3RT2946-4EA2	terminal cover for box terminals (3 pole)
3RT2946-4EA4	terminal cover for box terminals (4 pole)
3RH2914-2GP11	coupling link for mounting onto contactors 3RT2. (spring type)
3RH2914-1GP11	coupling link for mounting onto contactors 3RT2. (screw type)

3RT2926 -4R A12
I II III

- I. **Basic Type**
3RT2926 - accessory for 3RT2 for use with devices S3

- II. **Type of function**
4R - coilconnection module

- III. **Type of terminals and direction**
A11 - coilconnection module top screw terminals
B11 - coilconnection module bottom screw terminals
C11 - coilconnection module diagonal screw terminals

3RT29 46 -1C D ..
I II III IV V

- I. **Basic Type**
3RT29 - Accessory for 3RT2 or 3RH2

- II. **Size**
36 - suitable for use with devices S2
 (size S3 only with types 3RT2936-1B, -1J and -1E)
46 - suitable for use with devices S3

- III. **Type of components, EMC Protective Unit**
1A - special manufacturer's identification
1B - varistor without LED
1C - RC element without LED
1E - diode combination (diode + zener diode) without LED
1J - varistor with LED

- IV. **Voltage Ratings**
A - Special manufacturer's identification
B - 24 through 48 V ac / 24 through 70 V dc
C - 48 through 127 V ac / 70 through 150 V dc
D - 127 through 240 V ac / 150 through 250 V dc
E - 240 through 400 V ac
F - 400 through 600 V ac
J - 24 through 48 V ac / 12 through 24 Vdc
K - 48 through 127 V ac / 24 through 70 Vdc
L - 127 through 240 V ac / 70 through 150 Vdc
R - 24 Vdc
S - 30 through 250 V dc

- V. Suffix letters and/or numbers specifies manufacturer's identification

3RA23 44 -8X B 3 0 -1 A P0
I II III IV V VI VII VIII IX

- I. Basic type**
3RA23 - Reversing starter, basic contactor 3RT2
- II. Size**
45 - Basic contactor Type 3RT2045
46 - Basic contactor Type 3RT2046
47 - Basic contactor Type 3RT2047
- III. Type of motor protection device**
-8X - Without overload relays
- IV. Type of mounting**
B - Direct mounting
E - Basic contactor with communication interface
- V. Type of locking mechanism**
3 - With mechanical and electrical interlock
- VI. Auxiliary contact arrangements each device**
0 - 1 normally open
- VII. Type of terminals**
1 - Screw terminal
- VIII. Operating system**
A - AC operating system
N - UC operating system
- IX. Operating voltage**
.. - Identical to the basic contactor 3RT2.4

3RT23 46 -1 A P0 0 -4AA0
 I II III IV V VI VII

- I. Basic Type**
 3RT23 - Sirius AC-1 (AC-3 ...-4AA0) contactor, 4 NO main contacts
- II. Size S3**
 46 - 45 kW (...-4AA0)
- III. Type of terminals**
 1 - screw terminal for main and auxiliary contacts
 3 - screw terminal for main circuit and spring terminals for auxiliary and control circuit
 6 - main circuit without box terminal and screw terminals for auxiliary and control circuit
- IV. Operating system**
 A - AC operating system
 C - AC operating system with factory assembled EMC protective unit varistor type
 D - DC operating system with factory assembled EMC protective unit varistor type
 E - AC operating system with factory assembled EMC protective unit varistor type
 N - UC operating system with integrated varistor
 P - AC operating system with factory assembled EMC protective unit diode combination
 X- type of operating system in combination with VII
- V. Operating voltage**
 ... - 24 V/AC through 600 V/AC
 12 V/DC through 250 V/DC
 20 V/AC/DC through 280 V/AC/DC
- VI. Auxiliary contact arrangements**
 0 - 1 normally open and 1 normally closed (internally)
 4 - 2 normally open and 2 normally closed (1NO + 1NC internally, 1NO + 1NC top mounted)
 6 - 2 normally open and 2 normally closed (1NO + 1NC internally, 1NO + 1NC lateral mounted at the right side)
 8 - any other, individual auxiliary contact arrangements
- VII. Suffix letters and/or numbers specified commercial variations – optional**
 - 4AA0 3RT2346 (4NO) with AC-3 ratings

3RA24 44 -8X E 3 · -1 A ..
I II III IV V VI VII VIII IX

- I. Basic type**
3RA24 – Star-delta starter, basic contactor 3RT2
- II. Size**
44 - 3RT2045, 3RT2045, 3RT2035
45 - 3RT2045, 3RT2045, 3RT2036
46 - 3RT2046, 3RT2046, 3RT2037
- III. Type of motor protection device**
-8X - Without overload relays
- IV. Type of interface**
E - I/O Link module
F - Logic module
H - AS-I module
- V. Type of locking mechanism**
3 - With mechanical and electrical interlock
- VI. Auxiliary contact arrangements each device**
2 - 1 normally open and 1 normally closed
- VII. Type of terminals (Identical to the basic contactor 3RT2)**
1 - Screw Terminal
- VIII. Operating system**
A - AC operating system
N - UC operating system
- IX. Operating voltage**
.. - Identical to the basic contactor 3RT2.4

Accessories:

3RA2711-0EE06	Connecting cable 14 poles, length 9 cm
3RA2711-0EE07	Connecting cable 14 poles, length 26 cm
3RA2711-0EE08	Connecting cable 14 poles, length 33,5 cm
3RA2711-0EE10	Connecting cable 14 poles, length 3,5 cm
3RA2711-0EE16	Connecting cable 10 poles, length 9 cm
3RA2711-0EE15	Interface cover
3RA2943-2C	Star-delta connector set screw and spring terminal size S3 (S3-S3-S2)
3RA2943-2BB1	Star-delta connector set screw terminal size S3 (S3-S3-S3)
3RA2943-2BB2	Star-delta connector set spring terminal size S3 (S3-S3-S3)
3RT1946-4BA31	Star jumper screw terminal size S3
3RA1943-3D	Wiring connector top screw terminal size S3
3RA1943-3E	Wiring connector bottom screw terminal size S3
3RA2932-2C	Mechanical connector distance 0 for 3 pole contactors size S3
3RA2932-2D	Mechanical connector distance 10 for 4 pole contactors size S3
3RA2942-2G	Mechanical connector distance 10 for 3 pole contactors size S3
3RA2934-2B	Mechanical interlock
3RA2942-2F	Base plate for Star-delta starters

Communication modules

3RA27 1 1 : 1 A A 0
 I II III IV V VI VII

I		Basic Type
	3RA27	Communication module
II	Size	
	1	S00, S0, S2 and S3
III	Type of Interface	
	1	I/O Link module
	2	AS-I module
IV	Terminal	
	0	No terminals provided
	1	Screw terminal
	2	Spring (cage clamp) terminal
V	Kind of Device	
	A	Direct starting module
	B	Reverse starting module
	C	Star-Delta starting module
	D	Coupling module
VI	Wiring Set	
	A	Wiring-Set, complete
	B	Wiring-Set, spare part
	E	Spare part marking
VII	Unit Pack	
	00	Device single packaging
	10	Device multiple packaging (10 pieces per packaging)

Accessories:

3RA2943-2AA1	Reversing connector set screw terminal size S3
3RA2943-2AA2	Reversing connector set screw terminal for main circuit and spring terminals for control and auxiliary circuits size S3

3RA2816-0EW20- Star-delta starting modules

3RA29 1 1 = 0 0
 I II III IV V

- I Basic Type**
 3RA29 Star-Delta starting module
- II Size**
 1 S00, S0, S2 and S3
- III Type of Function**
 1 Coupling module
 2 Function module
- IV Cover**
 0 Sealable cover
- V Output**
 0 No terminals

3RH29 2 1 - 1 A A 0 0 - ...
 I II III IV V VI VII VIII IX

- I. 3RH29 - Accessories**
- II. Suitable for contactor and contactor relay sizes**
 1 - Front mounted versions suitable for devices size S00, S0, S2 and S3
 Laterally mounted versions for devices size S00
 2 - Laterally mounted versions for devices size S0, S2 and S3
- III. 1 - Accessories, auxiliary contact blocks**
- IV. Type of terminals**
 1 - Screw terminal
 2 - Cage Clamp terminal
 4 - Ring type terminal
- V. Design**
 A - Front mounted, 1 pole, entry of conductors top
 B - Front mounted, 1 pole, entry of conductors bottom
 D - Laterally mounted, 2 pole, marking according to DIN EN 50 012
 F - Front mounted, 4 pole, marking according to DIN EN 50 005
 G - Front mounted, 4 pole, marking according to DIN EN 50 011
 H - Front mounted, 4 pole, marking according to DIN EN 50 012
 L - Front mounted, 2 pole, entry of conductors top
 M - Front mounted, 2 pole, entry of conductors bottom
 N - Front mounted, solid-state compatible

X - Manufacturer's version

VI. Switching function

- A - Standard switching
- B - Make-before-break, 1 NO/NC contact pair
- C - Make-before-break, 2 NO/NC contact pairs
- E - Laterally mounted, solid-state compatible
- F - Front mounted, solid-state compatible

VII. Contact arrangement NO

- 0 - Non NO
- 1 - 1 NO
- 2 - 2 NO
- 3 - 3 NO
- 4 - 4 NO

VIII. Contact arrangement NC

- 0 - Non NC
- 1 - 1 NC
- 2 - 2 NC
- 3 - 3 NC
- 4 - 4 NC

IX. – Suffix letters and/or numbers specifies commercial variation

Technical Data

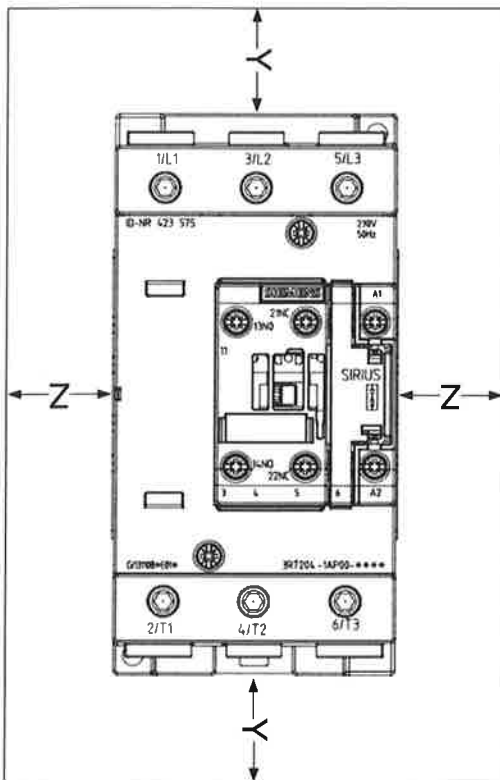
Technical data:	
- kind of equipment.....	contactor
- number of poles.....	3 poles or 4 poles
- kind of current (a.c. or d.c.).....	ac
- interrupting medium	air
- method of operation	electro magnetic
- method of control.....	automatic
- rated frequency	50/60Hz
- rated duties	uninterrupted duty
-Utilization category	AC-1, AC-3, AC-4
Rated and limiting values, main circuit	
Rated voltages	
- rated operational voltage Ue (V).....	up to 1000V
- rated insulation voltage Ui (V).....	1000V
	except 3RT20...-0CC0: 690V
- rated impulse withstand voltage Uimp(kV).....	8kV
	except 3RT20...-0CC0: 6kV
Currents or powers	
- conventional free air thermal current Ith (A).....	up to 160 A
- conventional enclosed thermal current Ithe (A)	-
- rated operational current Ie (A).....	up to 160 A (see table 1)
Rated conditional short-circuit current	
- rated prospective short-circuit current "r" (kA)	3kA, 5kA, 10kA
- rated conditional short-circuit current Iq (kA)	25kA, 100kA (see table 2)
-type of co-ordination.....	Type 1 and Type 2
- Pole impedance of a contactor (Z)	0,49mΩ up to 0,83mΩ
Control circuits	
The characteristics of electronic control circuits	
- kind of current	AC/DC
- rated frequency if a.c.	50/60Hz
- rated control circuit voltage Uc (nature: a.c. / d.c.)	24 Vac through 600 Vac 12 Vdc through 250 Vdc 20 Vac/Vdc through 280 Vac/Vdc

Auxiliary circuits:	
- rated operational voltage Ue: (V).....:	690V
- rated insulation voltage: Ui (V)	690V
- rated operational current: Ie (A).....:	10A
- kind of current	AC/DC
<hr/>	
- rated frequency if a.c.: (Hz)	50/60 Hz
- number of circuits	2
- number and kind of contact elements.....:	1NO / 1NC
- utilization category: (AC, DC, current and voltage)	AC-12: 690V/10A AC-15: 230V/6A, 400V/3A, 500V/2A, 690V/1A DC-12: 24V/10A, 60V/6A, 110V/3A, 125V/2A, 222V/1A, 440V/0,3A, 600V/0,15A DC-13: 24V/10A, 60V/2A, 110V/1A, 125V/0,9A, 250V/0,3A, 440V/0,14, 600V/0,1A
Short-circuit characteristic	
- Rated conditional short-circuit current (kA)	1kA (with Neozed and Diazed) 0,4kA (with MCB)
- kind of protective device	Neozed 10A; Diazed 10A; MCB C-Char. 10A

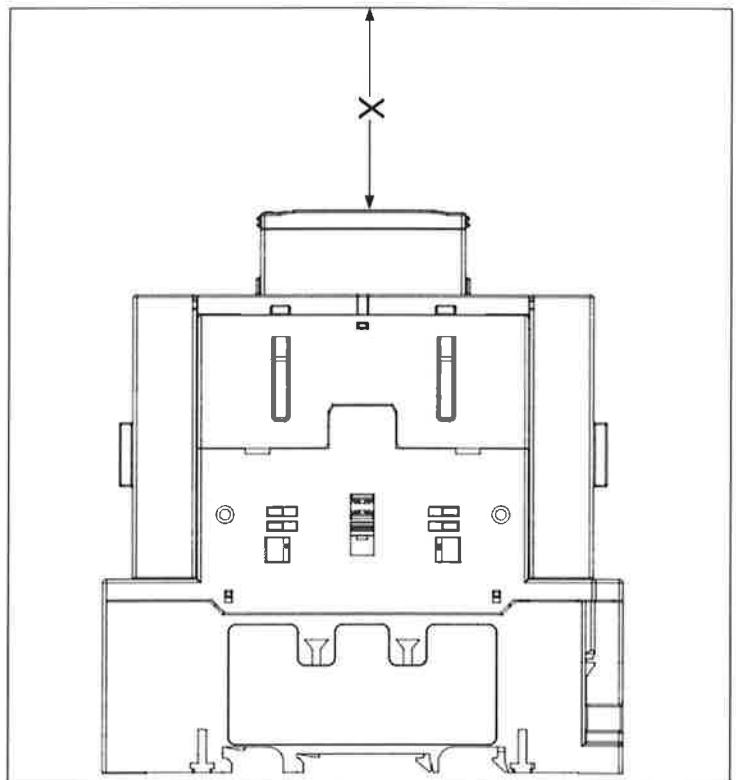
Table 1:	rated operational current I _e				
Motor contactor					
	rated operational current				
	I _e AC-3 [A]				I _e AC-4 [A]
	400V	500V	690V	1000V	400V
3RT2044-	65	65	47	25	55
3RT2045-	80	80	58	30	66
3RT2046-	95	95	78	30	80
3RT2047-	110	110	95	30	97
3RT2044-.KB40	65	65	47	25	55
3RT2045-.KB40	80	80	58	30	66
3RT2046-.KB40	95	95	78	30	80
3RT2346-.-4AA0	95	95	78	30	80
AC-1 contactor					
	rated operational current				
	I _e AC-1 [A]				
	400V	500V	690V	1000V	
3RT2344-	110	110	110	60	
3RT2346-	140	140	140	60	
3RT2348-	160	160	160	80	
3RT2446-	140	140	140	60	
3RT2448-	160	160	160	80	
Contactor 2NO + 2NC contacts					
	rated operational current				
	I _e AC-3 [A]				
	400V				
3RT2544-....	65				
3RT2545-....	80				

Table 2:		short circuit protection			
Motor contactor					
SCPD	LV HRC				
	gL/gG/690V		gB/1000V		
I _q	690V/100kA		1000V/25kA		
	Type 1	Type 2	Type 1	Type 2	
3RT2044-	250A	160A	200A	80A	
3RT2045-	250A	160A	200A	80A	
3RT2046-	250A	200A	200A	80A	
3RT2047-	250A	200A	200A	80A	
3RT2044-.KB40	250A	160A	200A	80A	
3RT2045-.KB40	250A	160A	200A	80A	
3RT2046-.KB40	250A	160A	200A	80A	
3RT2346-.-4AA0	250A	160A	200A	80A	
AC-1 contactor					
SCPD	LV HRC				
	gL/gG/690V	Sitor gR/690V	gB/1000V		
I _q	690V/100kA		1000V/25kA		
	Type 1	Type 2	Type 1	Type 2	
3RT2344-	250A	250A	200A	80A	
3RT2346-	250A	250A	200A	80A	
3RT2348-	250A	250A	200A	80A	
3RT2446-	250A	250A	200A	80A	
3RT2448-	250A	250A	200A	80A	
Contactor 2NO + 2NC contacts					
SCPD	LV HRC				
	gL/gG/400V				
I _q	400V/100kA				
	Type 1		Type 2		
3RT2544-	250A		125A		
3RT2545-	250A		125A		

Table 3	Distance between contactor and earthed metal parts				
	Type	Ue	Distance		
		[V]	X	Y	Z
			mm	mm	mm
3RT2.4.	up to 1000		10	10	0



front view



side view

Table 4	Connecting capacity				
	Type of terminals	solid	stranded	fine stranded	fine stranded with end sleeves
main	2x (2,5 ... 16) mm ²	2x (6 ... 16) mm ² 2x (10 ... 50) mm ² 1x (10 ... 70) mm ²	2x (10 ... 35) mm ² 1x (10 ... 50) mm ²	2x (2,5 ... 35) mm ² 1x (2,5 ... 50) mm ²	2x (6x9x0,8)mm

Type of terminals	Solid / stranded	fine stranded (only for spring type terminals)	fine stranded with end sleeves	flat conductor
control and aux.	2x (0,5 ... 1,5) mm ² 2x (0,75 ... 2,5) mm ²	2x (0,5 ... 2,5)mm ²	2x (0,5 ... 2,5) mm ² 2x (0,75 ... 2,5) mm ²	-