

SIEMENS

Prüf-Nr./Q-Nr.: **2643**
Certificate No.:

Dienststelle:
Department: **A&D CD CC TS2 / Schröck**

Ort:
Place: **Amberg** Tag: **2004-01-08**
Date:

Anlagen:
Enclosures: **Parts B1, B2 and B3 of Test Report Nos.: 99001TML, 99002TML**

Prüfbescheinigung / Test - Certificate

Erzeugnis / Product: **Combination of Circuit-Breakers and Contactors, Fuseless Load Feeders with Limiter**

Typ:
Type: **3RV1321/3RV1331, 3RV1021 and 3RT1024
3RV1331, 3RV1031 and 3RT103/3RT104**

Tech. Daten:
Specification: **U_e = 690 V, I_q = 50 kA**
**Type "2" Co-Ordination
Class 10**

Hersteller:
Manufacturer: **Siemens AG
A&D CD CC**

Art der Prüfung / Type of test: **Performance under short-circuit conditions**

Prüfer / Tested by: **TS1 / Mr. Precht-Schöpf**

Labor / Laboratory: **ALPHA registered
Testing Laboratory D 06
Siemens AG, Amberg**

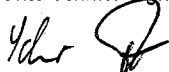
Angewandte Prüfbestimmungen / Test specifications applied:
IEC 60947-4-1: 2000-11, EN 60947-4-1: 2001-02

Durchgeführte Prüfungen / Tests conducted:
Test Sequence III: Performance under short-circuit conditions


Prüfergebnis / Test results:
All requirements of the test specification are met.

Bemerkungen / Remarks: **Issued: 2004-01-08**

Unterschrift / Signature



Gegengezeichnet / Released by:


A&D CD CC TS Mr. Walker


A&D CD CC TM Mr. Schweiger

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Formular: March 2002

Part B1 - Tests conducted

Manufacturer: **Siemens AG A&D CD CC Amberg**
 Test device: **Fuseless load feeder with limiter**
 Type: **3RV1321-../ 3RV1331-.. + 3RV1021-.. + 3RT1024-..**
 Test specification: **IEC 60947-4-1, Seq. III**
 Test report No.: **99001TML**

Test-sequence and sub-clause	Test
IEC 60947-4-1 Test-sequence III 9.3.4	Performance under short-circuit conditions Coordination type 2

The tests were carried out on devices, representative for the whole series, fixed on pages 2 up to 5.

For tested devices see Part B3 - Test summary, (page 6).

The tests were carried out in the *Prüflaboratorium der Siemens AG A&D CD Amberg*.

Accredited-No.: **DAT-P-026/9200**

The test results are in accordance with the test specification.


 Amberg, 2003-12-02
 Location, Date


 Signature

Part B2 - Nomenclature Breakdown

Series: Circuit breaker with limiter function 3RV1321-.. / 3RV1331-..

3RV1321 - 4D C 1 0
I II III IV V

- I** Basic type designation, circuit breaker, size S0 / S2
Maximum rated operational current 25 A / 50 A

3RV1321 - for starter combination with short-circuit protection only
instantaneous tripping 12xIe

3RV1331 - for starter combination with short-circuit protection only
instantaneous tripping 12xIe

- II** Current range:

4D - 25 A

4H - 50 A

- III** Type of release, CLASS:

C - without thermal overload release

- IV** Type of terminals:

1 - screw terminal

2 - cage clamp terminal

- V** Auxiliary switch:

0 - without auxiliary switch

1 - side mounted, 1NO+1NC

2 - side mounted, 2NO

3 - side mounted, 2NC

4 - top mounted, 1 changeover contact element

5 - top mounted, 1NO+1NC

8 - further mounting devices at point VI

Continuation: Nomenclature Breakdown

Series: Circuit breaker 3RV1021-..

$\frac{3RV1021}{I} - \frac{4D}{II} \quad \frac{A}{III} \quad \frac{1}{IV} \quad \frac{8}{V} - \frac{1B}{VI} \quad \frac{P0}{VII}$

- I** Basic type designation 3RV1021, circuit breaker, size S0
Maximum rated operational current 20 A
- II** Current range:
- | | |
|--------------------|------------------|
| 0A - 0,11 - 0,16 A | 1A - 1,1 - 1,6 A |
| 0B - 0,14 - 0,2 A | 1B - 1,4 - 2 A |
| 0C - 0,18 - 0,25 A | 1C - 1,8 - 2,5 A |
| 0D - 0,22 - 0,32 A | 1D - 2,2 - 3,2 A |
| 0E - 0,28 - 0,4 A | 1F - 3,5 - 5 A |
| 0F - 0,35 - 0,5 A | 1G - 4,5 - 6,3 A |
| 0G - 0,45 - 0,63 A | 1H - 5,5 - 8 A |
| 0H - 0,55 - 0,8 A | 1J - 7 - 10 A |
| 0J - 0,7 - 1 A | 4A - 11 - 16 A |
| 0K - 0,9 - 1,25 A | |
- III** Type of release, CLASS:
- A - CLASS 10
- IV** Type of terminals:
- 1 - screw terminal
3 - auxiliary circuit with cage clamp terminal
- V** Auxiliary switch:
- 0 - without auxiliary switch
1 - side mounted, 1NO+1NC
2 - side mounted, 2NO
3 - side mounted, 2NC
4 - top mounted, 1 changeover contact element
5 - top mounted, 1NO+1NC
8 - further mounting devices at point VI and VII
- VI** Further mounting devices:
- 1A - with short circuit signalling contact block
2A - with short circuit signalling contact block + side mounted, 1NO+1NC
3A - with short circuit signalling contact block + side mounted, 2NO
4A - with short circuit signalling contact block + side mounted, 2NC
5A - with short circuit signalling contact block + top mounted, 1 changeover contact element
6A - with short circuit signalling contact block + top mounted, 1NO+1NC
1B - undervoltage release
2B - undervoltage release with leading auxiliary switch
3B - voltage release

Continuation: Nomenclature Breakdown

VII Rated control supply voltage:

P0 - 230/220 V, 50 Hz

U0 - 240 V, 50 Hz

V0 - 400/380 V, 50 Hz

R0 - 415 V, 50 Hz

K1 - 120 V, 60 Hz

M1 - 208 V, 60 Hz

P1 - 240 V, 60 Hz

Continuation: Nomenclature Breakdown

Series: Contactor 3RT1024-..

$\frac{3RT10}{I}$ $\frac{24}{II}$ - $\frac{1}{III}$ $\frac{A}{IV}$ $\frac{B0}{V}$ $\frac{1}{VI}$

- I** Basic type designation 3RT10, motor contactor

- II** Power rating:
 24 - 5,5 kW

- III** Type of terminals:
 1 - screw terminal
 3 - cage clamp for the coil terminal

- IV** Operating system:
 A - ac operating system
 B - dc operating system
 C - ac operating system with integrated varistor
 D - dc operating system with integrated varistor
 E - ac operating system with integrated RC element
 F - dc operating system with integrated diode
 G - dc operating system with integrated bridge rectifier for AC control voltage
 H - dc operating system with extended operating voltage range
 J - dc operating system with extended operating voltage range,
 with integrated diode
 K - dc operating system with extended operating voltage range,
 with integrated varistor

- V** Rated operating voltage:
 A0 to W4 - 24 V through 600 Vac or 12 V through 250 Vdc

- VI** Auxiliary contact arrangement:
 0 - no auxiliary contact
 1 - 1 NO
 2 - 1 NC
 3 - 1 NO + 1 NC
 4 - 2 NO + 2 NC

Part B3 - Test summary

Test report No.: 99001TML

9.3.4 Performance under short-circuit conditions

Tests are carried out for $U_e = 690$ V.

The tables below show all possible combinations

Devices written in bold are tested representative for the whole series.

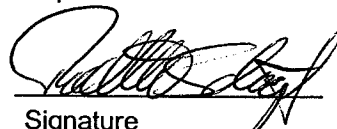
Every control voltage of the contactors is possible. See part B2.

Class 10: $U_e = 690$ V, Coordination type 2:

I_e [A]	Current range [A]	Circuit breaker with limiter function	Circuit breaker	Contactors	I_q [kA]	Tested sample No.: I_q	" r " [kA]	Tested sample No.: "r"
	0,11 - 0,16	not required	3RV1021-0AA10	3RT1024-1AP00	50	99001TM60	1	99001TM61
0,17	0,14 - 0,2	not required	3RV1021-0BA10	3RT1024-1AP00	50	--	1	--
0,23	0,18 - 0,25	not required	3RV1021-0CA10	3RT1024-1AP00	50	--	1	--
0,23	0,22 - 0,32	not required	3RV1021-0DA10	3RT1024-1AP00	50	--	1	--
0,35	0,28 - 0,4	not required	3RV1021-0EA10	3RT1024-1AP00	50	--	1	--
0,35	0,35 - 0,5	not required	3RV1021-0FA10	3RT1024-1AP00	50	--	1	--
0,49	0,45 - 0,63	not required	3RV1021-0GA10	3RT1024-1AP00	50	--	1	--
0,64	0,55 - 0,8	not required	3RV1021-0HA10	3RT1024-1AP00	50	--	1	--
0,87	0,7 - 1	not required	3RV1021-0JA10	3RT1024-1AP00	50	--	1	--
1,1	0,9 - 1,25	not required	3RV1021-0KA10	3RT1024-1AP00	50	--	1	--
1,1	1,1 - 1,6	not required	3RV1021-1AA10	3RT1024-1AP00	50	99001TM62	1	99001TM59
1,6	1,4 - 2	3RV1321-4DC10	3RV1021-1BA10	3RT1024-1AP00	50	99001TM01-03	1	99001TM40-42
2,1	1,8 - 2,5	3RV1321-4DC10	3RV1021-1CA10	3RT1024-1AP00	50	--	1	--
2,8	2,2 - 3,2	3RV1321-4DC10	3RV1021-1DA10	3RT1024-1AP00	50	--	1	--
3,8	3,5 - 5	3RV1321-4DC10	3RV1021-1FA10	3RT1024-1AP00	50	--	1	--
4,9	4,5 - 6,3	3RV1321-4DC10	3RV1021-1GA10	3RT1024-1AP00	50	99001TM04-06	1	99001TM43-45
6,7	5,5 - 8	3RV1321-4DC10	3RV1021-1HA10	3RT1024-1AP00	20	99001TM07-09	1	99001TM46-48
8,9	7 - 10	3RV1321-4DC10	3RV1021-1JA10	3RT1024-1AP00	20	99001TM28-30	1	99001TM49-50
12,8	11 - 16	3RV1321-4DC10	3RV1021-4AA10	3RT1024-1AP00	20	99001TM25-27	1	99001TM52-54
6,7	5,5 - 8	3RV1331-4HC10	3RV1021-1HA10	3RT1024-1AP00	50	99001TM55	1	99001TM57
8,9	7 - 10	3RV1331-4HC10	3RV1021-1JA10	3RT1024-1AP00	50	99001TM56	1	99001TM58

The test results are in accordance with the test specification.

Amberg, 2003-12-08
Location, Date


Signature

Part B1 - Tests conducted

Manufacturer: **Siemens AG A&D CD CC Amberg**
 Test device: **Fuseless load feeder with limiter**
 Type: **3RV1331-.. + 3RV1031-.. + 3RT103../ 3RT104..**
 Test specification: **IEC 60947-4-1, Seq. III**
 Test report No.: **99002TML**

Test-sequence and sub-clause	Test
IEC 60947-4-1 Test-sequence III 9.3.4	Performance under short-circuit conditions Coordination type 2

The tests were carried out on devices, representative for the whole series, fixed on pages 2 up to 6.

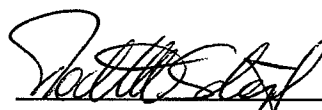
For tested devices see Part B3 - Test summary, (page 7).

The tests were carried out in the *Prüflaboratorium der Siemens AG A&D CD Amberg*.

Accredited-No.: **DAT-P-026/9200**

The test results are in accordance with the test specification.


 Location, Date


 Signature

Part B2 - Nomenclature Breakdown

Series: Circuit breaker with limiter function 3RV1331-..

3RV1331 - 4H C 1 0
I II III IV V

- I Basic type designation, circuit breaker, size S0 / S2
Maximum rated operational current 50 A

3RV1331 - for starter combination with short-circuit protection only
instantaneous tripping 12xIe

- II Current range:

4H - 50 A

- III Type of release, CLASS:

C - without thermal overload release

- IV Type of terminals:

- 1 - screw terminal
- 2 - cage clamp terminal

- V Auxiliary switch:

- 0 - without auxiliary switch
- 1 - side mounted, 1NO+1NC
- 2 - side mounted, 2NO
- 3 - side mounted, 2NC
- 4 - top mounted, 1 changeover contact element
- 5 - top mounted, 1NO+1NC
- 8 - further mounting devices at point VI

Continuation: Nomenclature Breakdown

Series: Circuit breaker 3RV1031-..

	<u>3RV1031</u>	-	<u>4H</u>		<u>A</u>		<u>1</u>		<u>8</u>	-	<u>1B</u>	<u>P0</u>
	I		II		III		IV		V		VI	VII
I	Basic type designation, circuit breaker, size S2 Maximum rated operational current 50 A 3RV1031 - for motor protection with overload and short-circuit protection, instantaneous tripping 12xIe											
II	Current range: 4A - 11 - 16 A 4B - 14 - 20 A 4D - 18 - 25 A 4E - 22 - 32 A 4F - 28 - 40 A 4G - 36 - 45 A 4H - 40 - 50 A											
III	Type of release, CLASS: A - Class 10											
IV	Type of terminals: 1 - screw terminal 3 - auxiliary circuit with cage clamp terminal											
V	Auxiliary switch: 0 - without auxiliary switch 1 - side mounted, 1NO+1NC 2 - side mounted, 2NO 3 - side mounted, 2NC 4 - top mounted, 1 changeover contact element 5 - top mounted, 1NO+1NC 8 - further mounting devices at point VI and VII											
VI	Further mounting devices: 0A - no further mounting device 1A - with short circuit signalling contact block 2A - with short circuit signalling contact block + side mounted, 1NO+1NC 3A - with short circuit signalling contact block + side mounted, 2NO 4A - with short circuit signalling contact block + side mounted, 2NC 5A - with short circuit signalling contact block + top mounted, 1 changeover contact element 6A - with short circuit signalling contact block + top mounted, 1NO+1NC 1B - undervoltage release 2B - undervoltage release with leading auxiliary switch 3B - voltage release											

Continuation - Nomenclature breakdown

VII Rated control supply voltage:

- A2 - no meaning
- P0 - 230/220 V, 50 Hz
- U0 - 240 V, 50 Hz
- V0 - 400/380 V, 50 Hz
- R0 - 415 V, 50 Hz
- K1 - 120 V, 60 Hz
- M1 - 208 V, 60 Hz
- R1 - 240 V, 60 Hz
- B4 - 24 .. 60 V, dc
- F4 - 110 .. 240 V, dc

Continuation: Nomenclature Breakdown

Series: Contactor 3RT103..

$\frac{3RT10}{I}$ $\frac{34}{II}$ - $\frac{1}{III}$ $\frac{A}{IV}$ $\frac{B0}{V}$ $\frac{1}{VI}$

- I** Basic type designation 3RT10, motor contactor

- II** Power rating:
 - 34 - 15 kW
 - 35 - 18,5 kW

- III** Type of terminals:
 - 1 - screw terminal
 - 3 - cage clamp for the auxiliary terminal

- IV** Operating system:
 - A - ac operating system
 - B - dc operating system
 - C - ac operating system with EMC protective unit - varistor
 - D - dc operating system with EMC protective unit - varistor
 - E - ac operating system with EMC protective unit - RC element
 - F - dc operating system with EMC protective unit - diode
 - H - dc operating system with extended operating voltage range
 - J - dc operating system with extended operating voltage range, with EMC protective unit - diode
 - K - dc operating system with extended operating voltage range, with EMC protective unit - varistor

- V** Rated operating voltage:
 - A0 to W4 - 24 V through 600 Vac or 12 V through 250 Vdc

- VI** Auxiliary contact arrangement:
 - 0 - no auxiliary contact
 - 1 - 1 NO
 - 2 - 1 NC
 - 3 - 1 NO + 1 NC top mounted
 - 4 - 2 NO + 2 NC top mounted
 - 5 - 1 NO + 1 NC side mounted
 - 6 - 2 NO + 2 NC side mounted
 - 8 - manufacturer`s identification
 - 9 - customer`s identification

Continuation: Nomenclature Breakdown

Series: Contactor 3RT104..

$\frac{3RT10}{I}$ $\frac{44}{II}$ - $\frac{1}{III}$ $\frac{A}{IV}$ $\frac{B0}{V}$ $\frac{1}{VI}$

- I Basic type designation 3RT10, motor contactor

- II Power rating:
 - 44 - 30 kW
 - 45 - 37 kW

- III Type of terminals:
 - 1 - screw terminal
 - 3 - cage clamp for the auxiliary terminal

- IV Operating system:
 - A - ac operating system
 - B - dc operating system
 - C - ac operating system with EMC protective unit - varistor
 - D - dc operating system with EMC protective unit - varistor
 - E - ac operating system with EMC protective unit - RC element
 - F - dc operating system with EMC protective unit - diode
 - H - dc operating system with extended operating voltage range
 - J - dc operating system with extended operating voltage range, with EMC protective unit - diode
 - K - dc operating system with extended operating voltage range, with EMC protective unit - varistor

- V Rated operating voltage:
 - A0 to W4 - 24 V through 600 Vac or 12 V through 250 Vdc

- VI Auxiliary contact arrangement:
 - 0 - no auxiliary contact
 - 1 - 1 NO
 - 2 - 1 NC
 - 3 - 1 NO + 1 NC top mounted
 - 4 - 2 NO + 2 NC top mounted
 - 5 - 1 NO + 1 NC side mounted
 - 6 - 2 NO + 2 NC side mounted
 - 8 - manufacturer`s identification
 - 9 - customer`s identification

Part B3 - Test summary

Test report No.: 99002TML

9.3.4 Performance under short-circuit conditions

Tests are carried out for $U_e = 690$ V.

The tables below show all possible combinations

Devices written in bold are tested representative for the whole series.

Every control voltage of the contactors is possible. See part B2.

Class 10: $U_e = 690$ V, Coordination type 2:

le [A]	Current range [A]	Circuit breaker with limiter function	Circuit breaker	Contactors	Iq [kA]	Tested sample No.: Iq	"I" [kA]	Tested sample No.: "I"
12,8	11 - 16	3RV1331-4HC10	3RV1031-4AA10	3RT1034-1AP00	50	99002TM55-57	1	99002TM61-63
17	14 - 20	3RV1331-4HC10	3RV1031-4BA10	3RT1034-1AP00	50	99002TM01-03	3	99002TM40-42
21	18 - 25	3RV1331-4HC10	3RV1031-4DA10	3RT1035-1AP00	50	99002TM04-06	3	99002TM43-45
24	22 - 32	3RV1331-4HC10	3RV1031-4EA10	3RT1035-1AP00	50	99002TM07-09	3	99002TM46-48
32	28 - 40	3RV1331-4HC10	3RV1031-4FA10	3RT1044-1AP00	50	99002TM76-78	3	99002TM67-69
39	36 - 45	3RV1331-4HC10	3RV1031-4GA10	3RT1044-1AP00	50	99002TM79-81	3	99002TM70-72
47	40 - 50	3RV1331-4HC10	3RV1031-4HA10	3RT1045-1AP00	50	99002TM82-84	3	99002TM73-75

The test results are in accordance with the test specification.

Amberg, 2003-12-08
Location, Date


Signature