SIEMENS

Prüf-Nr./Q-Nr.: *Certificate No.:* **3351e**

Dienststelle: *Department:* **SI EP R&D TC 1 / Pester**

Ort: *Place:* **Amberg** Tag: *Date:* **2020-11-25**

Anlagen: *Enclosures:* **Product Description 3351e Amendment A1**

Typprüfbescheinigung / *Type Test Certificate*

Erzeugnis / *Product:* **Contactors for use in Railway Applications**

Typ: *Type:* **3RT2.1, 3RT2.2, 3RT2.3, 3RT2.4, 3RT1.5, 3RT1.6, 3RT1.7, 3RH2, 3RH19, 3RH29**

Tech. Daten: *Specification:* **$U_{e\ max}$ = 1000V**

Hersteller: *Manufacturer:* **Siemens AG SI EP**

Art der Prüfung / *Type of test:* **Type Test in accordance with Railway Specification**

Prüfer / *Tested by:* **SI EP R&D TC 3 1**
SI EP R&D CP EMD

Labor / *Laboratory:* **Testing Laboratory Siemens AG, Amberg**

Angewandte Prüfbestimmungen / *Test specifications applied:*
IEC 60077-2 Ed. 2.0 (2017-07)

Durchgeführte Prüfungen / *Tests conducted:*
IEC 60077-2: Test Sequence III - Ability to withstand vibrations and shocks

Prüfergebnis / *Test results:*
All requirements of the test specification are met. See amendment A1.

Bemerkungen / *Remarks:* **Issued: 2016-05-23**

Index a, dated 2016-10-19: Types 3RT203, 3RT243, 3RT2.4, 3RT1.5, 3RT1.6 and 3RT1.7 added.
Index b, dated 2017-07-26: Accessories 3RH19 and 3RH29 added.
Index c, dated 2017-11-07: Four pole types and alternate mounting positions added, Version of the Standard updated
Index d, dated 2018-08-13: Types 3RT1467 added.
Index e, dated 2020-11-25: Amendment A1 added.

i.V. Bogner Walter
Digital unterschrieben von Bogner Walter
Datum: 2021.01.11 09:41:59 +01'00'
SI EP R&D TC 3 Mr. Bogner

i.V.
Digital signiert von Royer Fritz
DN: cn=Royer Fritz, o=Siemens, email=fritz.royer@siemens.com
Datum: 2021.01.07 21:05:59 +01'00'
SI EP R&D CP PMM Mr. Royer

General

Type designation: *3RT2.1, 3RH2, 3RT2.2, 3RT2.3, 3RT2.4, 3RH29, 3RT1.5, 3RT1.6, 3RT1.7, 3RH19*

Manufacturer: *Siemens AG, SI EP*
92220 Amberg, Werner-von-Siemens-Str. 48
Germany

Production site: *Siemens AG, SI EP*
92220 Amberg, Werner-von-Siemens-Str. 48
Germany

Siemens AG, SI EP
93413 Cham, Werner-von-Siemens-Str. 29
Germany

Siemens, s.r.o.,
Odstěpny Závod Nízkonapět'ová Spínací Technika
Volanovská 516
541 01 Trutnov
Czech Republic

Siemens Ltd.
Thane Belapur Road, 400601 Thane, India

Nomenclature breakdown

3RT20	**15**	**-2**	**L**	**B4**	**2**	**-0**	**LA0**
I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**

I. Basic Type
3RT20 - Sirius AC-3 contactor, 3NO main contacts
3RT23 - Sirius AC-1 contactor, 4NO main contacts
3RT25 - Sirius ontactor, 2 NO + 2 NC main contacts

II. Size S00
3RT20 (AC-3):
15 - 3 kW
16 - 4 kW
17 - 5,5 kW
18 - 7,5 kW
3RT23 (AC-1):
16 - 18 A
17 - 22 A
3RT25 (AC-3):
16 - 4 kW
17 - NO: 5,5 kW; NC: 4 kW
18 - NO: 7,5 kW; NC: 4 kW

III. Type of Terminals
1 - Screw Terminal
2 - Spring Terminal

IV. Operating system
H - DC operating system
J - DC operating system (surge suppressor - diode)
K - DC operating system (surge suppressor - diode-suppressor)
L - DC (surge suppressor - varistor)
X - Type of operating system in combination with VIII

V. Operating voltage
Operating system type X:
B4 - 24 Vdc through 34 Vdc
F4 - 72 Vdc through 125 Vdc

Operating system type H, J; K or L:
B4 - 24 Vdc
J8 - 72 Vdc
F4 - 110 Vdc
G4 - 125 Vdc

VI. Auxiliary Contact Arrangements

0 - non auxiliary contact
1 - 1 normally open (internally)
2 - 1 normally closed (internally)
4 - 2 normally open and 2 normally closed (1NO internally, 1NO + 2 NC top mounted)
6 - 3 normally open and 2 normally closed (1NO internally, 2 lateral mounted aux. switches (1NO + 1NC per auxiliary switch))
7 - 3 normally open and 2 normally closed (1NO internally, 2NO + 2 NC top mounted)
8 - Any other, individual auxiliary contact arrangements contacts

VII. Mounting Position

0 - normal
1 - vertical
2 - upside down

VIII. Suffix letters and/or numbers specified commercial variations

-.LA0 - contactor for special applications
-.LA1 - contactor for special applications controlled by PLC output
-.LA2 - contactor for special applications with electronic operating system
-.LA3 - contactor for special applications controlled by PLC output

3RH2	**1**	**2**	**2**	**-2**	**L**	**B4**	**0**	**-0**	**LA0**
I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**IX**	**X**

I. Basic Type
3RH2- - Sirius Control Relay

II. Control Relay
1 - 4 pole
2 - 8 pole with top mounted, not removable auxiliary contact block
3 - 8 pole with top mounted, removable auxiliary contact block
4 - Latched control relay
8 - specifies commercial versions

III. Contact Arrangements for NO
0 - non NO
1 - 1 NO
2 - 2 NO
3 - 3 NO
4 - 4 NO
5 - 5 NO
6 - 6 NO
7 - 7 NO
8 - 8 NO

IV. Contact Arrangements for NC
0 - non NC
1 - 1 NC
2 - 2 NC
3 - 3 NC
4 - 4 NC

V. Type of Terminals
1 - Screw Terminal
2 - Spring Terminal

VI. Operating system
H - DC operating system
J - DC operating system (surge suppressor - diode)
K - DC operating system (surge suppressor - diode-suppressor)
L - DC (surge suppressor - varistor)
X - Type of operating system in combination with X

VII. Operating voltage
Operating system type X:
B4 - 24 Vdc through 34 Vdc
F4 - 72 Vdc through 125 Vdc

Operating system type H, J; K or L:
B4 - 24 Vdc
W8 – 32 V dc
V8 – 34 V dc
J8 – 72 V dc
F4 - 110 Vdc
G4 - 125 Vdc
M4 – 220 V dc

VIII. Auxiliary Contact Arrangements

0 - no additional auxiliary contact

IX. Mounting Position

0 - normal
1 - upright
2 - upside down

X. Suffix letters and/or numbers specified commercial variations

-.LA0 – contactor for special applications
-.LA2 – contactor for special applications with electronic operating system
-.LA4 – contactor for special applications
-.LB2 – contactor for special applications with electronic operating system for PLC input

3RT20	**23**	**-2**	**X**	**B4**	**0**	**-0**	**LA2**
I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**

I. Basic Type
3RT20 - Sirius AC-3 contactor, 3NO main contacts
3RT23 - Sirius AC-1 contactor, 4NO main contacts
3RT25 - Sirius contactor, 2 NO + 2 NC main contacts

II. Size S0
3RT20 (AC-3):
23 - 4 kW
24 - 5,5 kW
25 - 7,5 kW
26 - 11 kW
27 - 15 kW
28 - 18,5 kW
3RT23 (AC-1):
25 - 35 A
26 - 40 A
27 - 50 A
3RT25 (AC-3):
26 - NO: 11 kW; NC: 7,5 kW

III. Type of Terminals
1 - Screw Terminal
2 - Spring Terminal

IV. Operating system
K - DC (surge suppressor)
X - Type of operating system in combination with VIII

V. Operating voltage
B4 - 24 V dc
L4 – 36 V dc
J4 - 72 V dc
F4 - 110 V dc
G4 – 125 V 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 + 1 NC top mounted)
8 - any other, individual auxiliary contact arrangements

VII. Mounting Position

0 - normal
1 - upright
2 - upside down

VIII. Suffix letters and/or numbers specified commercial variations

-.LA2 – contactor for special applications

3RT20	35	-1	X	B4	0	-0	LA2
I	II	III	IV	V	VI	VII	VIII

I. Basic Type
3RT20 - Sirius AC-3 contactor, 3NO main contacts
3RT23 - Sirius AC-1 contactor, 4NO main contacts
3RT25 - Sirius contactor, 2 NO + 2 NC main contacts

II. Size S2
3RT20 (AC-3):
35 - 18,5 kW
36 - 22 kW
37 - 30 kW
38 - 37 kW
3RT23 (AC-1):
36 - 60 A
37 - 110 A
3RT25 (AC-3):
35 - 18,5 kW
36 - 22 kW

III. Type of Terminals
1 - Screw terminals for main, auxiliary and control circuit
3 - Screw terminals for main and spring terminals for auxiliary and control circuit

IV. Operating system
X - Type of operating system in combination with VIII

V. Operating voltage
B4 - 24 V dc
J4 - 72 V dc
F4 - 110 V 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. Mounting Position
0 - normal
1 - upright
2 - upside down

VIII. Suffix letters and/or numbers specified commercial variations

-.LA2 – contactor for special applications

3RT20	**45**	**-1**	**X**	**B4**	**0**	**-0**	**LA2**
I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**

I. Basic Type
3RT20 - Sirius AC-3 contactor, 3NO main contacts
3RT23 - Sirius AC-1 contactor, 4NO main contacts
3RT24 - Sirius AC-1 contactor, 3NO main contacts
3RT25 - Sirius contactor, 2 NO + 2 NC main contacts

II. Size S3
3RT20 (AC-3):
45 - 37 kW
46 - 45 kW
47 - 55 kW
3RT23 (AC-1):
44 - 110 A
46 - 140 A
48 - 160 A
3RT24 (AC-1):
46 - 140 A
48 - 160 A
3RT25 (AC-3):
44 - 30 kW
45 - 37 kW

III. Type of Terminals
1 - Screw terminals for main, auxiliary and control circuit
3 - Screw terminals for main 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
X - Type of operating system in combination with VIII

V. Operating voltage
B4 - 24 V dc
J4 - 72 V dc
F4 - 110 V 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. Mounting Position

0 - normal
1 - upright
2 - upside down

VIII. Suffix letters and/or numbers specified commercial variations

-LA2 – contactor for special applications

3RH29	**1**	**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 - Top mounted versions suitable for devices size S00 up to S3
Lateral mounted versions for devices size S00

2 - Lateral mounted versions for devices size S0 up to S3

III. 1 - Accessories, auxiliary contact blocks

IV. Type of terminals

1 - Screw terminal

2 - Spring terminal

V. Design

A - Top mounted, 1 pole, entry of conductors top

B - Top mounted, 1 pole, entry of conductors bottom

D - Lateral mounted, 2 pole, marking according to DIN EN 50 012

E - Lateral mounted, 2 pole, marking according to DIN EN 50 005

F - Top mounted, 4 pole, marking according to DIN EN 50 005

G - Top mounted, 4 pole, marking according to DIN EN 50 011

H - Top mounted, 4 pole, marking according to DIN EN 50 012

L - Top mounted, 2 pole, entry of conductors top

M - Top mounted, 2 pole, entry of conductors bottom

N - Top 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 - Lateral mounted, solid-state compatible

F - Top mounted, solid-state compatible

L, M - Top mounted, solid-state compatible contacts and conventional contacts

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

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

3RT10	**54**	**-1**	**X**	**B4**	**6**	**-0**	**LA2**
I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**

I. Basic Type
3RT10 - Sirius AC-3 contactor, 3NO main contacts
3RT14 - Sirius AC-1 contactor, 3NO main contacts

II. Size S6
3RT10 (AC-3):
54 - 55 kW
55 - 75 kW
56 - 90 kW
3RT14 (AC-1):
56 - 275 A

III. Type of Terminals
1 - Main contacts: box terminal, control circuit terminals: screw type
2 - Main contacts: without box terminal, control circuit terminals: spring type
3 - Main contacts: box terminal, control circuit terminals: spring type
6 - Main contacts: without box terminal, control circuit terminals: screw type
7 - Main contacts: box terminal with 3RT1955-4G terminal box, control terminals: screw type
8 - customer specific type in combination with VII

IV. Operating system
X - Type of operating system in combination with VII

V. Operating voltage
B4 - 24 V dc
J4 - 72 V dc
F4 - 110 V dc

VI. Auxiliary Contact Arrangements
0 - no auxiliary contact
4 - 2 normally open and 2 normally closed (top mounted)
5 - 1 normally open and 1 normally closed (lateral mounted aux. contact at the left side)
6 - 2 normally open and 2 normally closed (two lateral mounted aux. contacts at each side)
7 - 4 normally open and 4 normally closed (four lateral mounted aux. contacts)
8 - manufacturer’s identification

VII. Mounting Position
0 - normal
1 - upright

VIII. Suffix letters and/or numbers specified commercial variations
-LA2 – contactors for special applications with DC electronic operating system and PLC input

3RT10	**64**	**-1**	**X**	**B4**	**6**	**-0**	**LA2**
I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**

I. Basic Type
3RT10 - Sirius AC-3 contactor, 3NO main contacts
3RT14 - Sirius AC-1 contactor, 3NO main contacts

II. Size S10
3RT10 (AC-3):
64 - 110 kW
65 - 132 kW
66 - 160 kW
3RT14 (AC-1):
66 - 400 A
67 - 500 A

III. Type of Terminals
1, 7 - Main contacts: box terminal, control circuit terminals: screw type
2 - Main contacts: without box terminal, control circuit terminals: spring type
3 - Main contacts: box terminal, control circuit terminals: spring type
6 - Main contacts: without box terminal, control circuit terminals: screw type

IV. Operating system
X - Type of operating system in combination with VII

V. Operating voltage
B4 - 24 V dc
J4 - 72 V dc
F4 - 110 V dc

VI. Auxiliary Contact Arrangements
0 - no auxiliary contact
4 - 2 normally open and 2 normally closed (top mounted)
5 - 1 normally open and 1 normally closed (lateral mounted aux. contact at the left side)
6 - 2 normally open and 2 normally closed (two lateral mounted aux. contacts at each side)
7 - 4 normally open and 4 normally closed (four lateral mounted aux. contacts)
8 - manufacturer’s identification

VII. Mounting Position
0 - normal

VIII. Suffix letters and/or numbers specified commercial variations
-LA2 – contactors for special applications with DC electronic operating system and PLC input

3RT10	**75**	**-1**	**X**	**B4**	**6**	**-0**	**LA2**
I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**

I. Basic Type
3RT10 - Sirius AC-3 contactor, 3NO main contacts
3RT14 - Sirius AC-1 contactor, 3NO main contacts

II. Size S12
3RT10 (AC-3):
75 - 200 kW
76 - 250 kW
3RT14 (AC-1):
76 - 690 A

III. Type of Terminals
1, 7 - Main contacts: box terminal, control circuit terminals: screw type
2 - Main contacts: without box terminal, control circuit terminals: spring type
3 - Main contacts: box terminal, control circuit terminals: spring type
6 - Main contacts: without box terminal, control circuit terminals: screw type

IV. Operating system
X - Type of operating system in combination with VII

V. Operating voltage
B4 - 24 V dc
J4 - 72 V dc
F4 - 110 V dc

VI. Auxiliary Contact Arrangements
0 - no auxiliary contact
4 - 2 normally open and 2 normally closed (top mounted)
5 - 1 normally open and 1 normally closed (lateral mounted aux. contact at the left side)
6 - 2 normally open and 2 normally closed (two lateral mounted aux. contacts at each side)
7 - 4 normally open and 4 normally closed (four lateral mounted aux. contacts)
8 - manufacturer’s identification

VII. Mounting Position
0 - normal
1 - upright

VIII. Suffix letters and/or numbers specified commercial variations
-LA2 – contactors for special applications with DC electronic operating system and PLC input

3RH1921	**-1**	**F**	**A**	**0**	**4**
I	**II**	**III**	**IV**	**V**	**VI**

I. Basic type designation 3RH1921:
auxiliary contact block top mounted for contactors 3RT1

II. Type of terminals:
1 - Screw terminal
2 - Spring terminal

III. Mounting area:
C - Top mounted, single pole
F - Top mounted, 4 pole, marking according to DIN EN 50 005
H - Top mounted, 4 pole, marking according to DIN EN 50 012

IV. Switching function:
A - Without determination
B - Making before breaking, one pair of NO and NC contacts
C - Making before breaking, two pairs of NO and NC contacts
E - Solid-state compatible
J - Combination of standard switching and solid-state compatible

V. Contact arrangements for NO:
0 - no NO provided
1 - 1 NO
2 - 2 NO
3 - 3 NO
4 - 4 NO

VI. Contact arrangements for NC:
0 - no NC provided
1 - 1 NC
2 - 2 NC
3 - 3 NC
4 - 4 NC

3RH1921	**-1**	**E**	**A**	**1**	**1**
I	**II**	**III**	**IV**	**V**	**VI**

I. Basic type designation 3RH1921:
auxiliary contact block lateral mounted for contactors 3RT1

II. Type of terminals:
1 - Screw terminal
2 - Spring terminal

III. Mounting area:
D - Lateral mounted, 2 pole, marking according to DIN EN 50 012
E - Lateral mounted, 2 pole, marking according to DIN EN 50 005
J - Lateral mounted, 2 pole, marking according to DIN EN 50 012
K - Lateral mounted, 2 pole, marking according to DIN EN 50 005

IV. Switching function:
A - Without determination
B - Making before breaking, one pair of NO and NC contacts
E - Solid-state compatible

V. Contact arrangements for NO:
0 - no NO provided
1 - 1 NO
2 - 2 NO

VI. Contact arrangements for NC:
0 - no NC provided
1 - 1 NC
2 - 2 NC

Technical Data

IEC 60077-2 Test Sequence III, Vibration
Long life test according to IEC 61373 part 9.1 Category 1 Class B
Functional random test according to IEC 61373 part 8.1 Category 1 Class B
IEC 60077-2 Test Sequence III, Shock
Shock test according to IEC 61373 part 10.5 Category 1 Class B
IEC 60077-2 Test Sequence III, Verification of functional operation
IEC 60077-2 Test Sequence III, Verification of dielectric withstand

SIEMENS

Amendment 1 **Certificate No.: 3351e**

	long life test according to: IEC 61373 part 9.1 Category 1 class B	functional test according to: IEC 61373 part 8.1 Category 1 class B	Shock according to: IEC 61373 part 10.5 Category 1 class B		
			"no change in operational state"	"no change in contact state" Main contacts	"no change in contact state" Aux. contacts
3RT2.1.-.H/J/K/L/X...-.LA.	passed	passed	50 m/s²: axis X, Y, Z	50 m/s²: axis X, Y, Z	50 m/s²: axis X, Y, Z
3RH2...-.H/J/K/L/X...-.LA/B.				-	
3RT2.2.-.K/X...-.LA2				50 m/s²: axis X, Y, Z	
3RT203.-.X...-.LA2				50 m/s²: axis X, Y, Z	50 m/s²: axis X,Z 30 m/s²: axis Y
3RT233.-.X...-.LA2 3RT253.-.X...-.LA2				50 m/s²: axis X,Z 30 m/s²: axis Y	
3RT204.-.X...-.LA2 3RT234.-.X...-.LA2 3RT244.-.X...-.LA2				50 m/s²: axis X, Y, Z	
3RT254.-.X...-.LA2				50 m/s²: axis X,Z 30 m/s²: axis Y	
3RT1.5.-.X...-.LA2				50 m/s²: axis X, Y, Z	
3RT1.6.-.X...-.LA2					
3RT1.7.-.X...-.LA2					