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Prüf-Nr./Q-Nr.: *Certificate No.:* **2554 c**

Dienststelle: *Department:* **I IA CE CP PRM SR 1 / Drutschmann**

Ort: *Place:* **Amberg** Tag: *Date:* **2010-12-10**

Anlagen: *Enclosures:* **Test Summary**

Prüfbescheinigung / *Test – Certificate*

Erzeugnis / *Product:* **ET200S High Feature Motor Starter**

Typ: *Type:* **3RK1301**
3RK1903

Tech. Daten: *Specification:* $U_{e\ max}$ = 500 V
$I_{e\ AC\text{-}3\ max}$ = 16 A, $I_{e\ AC\text{-}1\ max}$ = 16 A

Hersteller: *Manufacturer:* **Siemens AG**
I IA CE

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

Prüfer / *Tested by:* **TQ TL / Mr. Prechtl-Schöpf**

Labor / *Laboratory:* **LOVAG registered and DAkkS accredited Testing Laboratory Siemens AG, Amberg**

Angewandte Prüfbestimmungen / *Test specifications applied:*
IEC 60947-1: 2007-06
IEC 60947-4-1: 2009-09
IEC 60947-4-2, Ed. 2.2: 2007-02
IEC 60947-5-1, Ed. 3.1: 2009-07

Durchgeführte Prüfungen / *Tests conducted:*
For conducted tests see attached Test Summary

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

Bemerkungen / *Remarks:* **Issued: 2002-08-07**

This Test Certificate covers ET200S High Feature Motor Starters (Size S0), Direct on-line starters, Reversing starters and Soft starters and any accessories type 3RK1903.

Index a, dated 2004-01-14: Test report No.: 03101TEL added, Parts B1, B2 and B3 replaced.

Index b, dated 2004-07-08: Test report No.: 04038TEL added (terminal tests only), Parts B1, B2 and B3 replaced.

Index c, dated 2010-12-10: References to test report Nos.: 10044TEI01, 10044TEI02 and EMC test added. Attachments including Parts B1, B2 and B3 replaced completely by test summary 2554c.

Unterschrift / *Signature*

Gegengezeichnet / *Released by:*

i. V.
I IA CE CP PRM SR Mr. Hiereth

i. V.
I IA CE CP R&D-TE Mr. Knauer

SIEMENS AG **Industry Sector**

S. Russwurm (Head)

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Test summary

Certificate No.: 2554c

Manufacturer: ***Siemens AG I IA CE Amberg***
Werner-von-Siemens-Str. 48, 92220 Amberg

Test device: ***Motor starter, Terminal module for frequency inverter***

Type: ***3RK1301-.., 3RK1903..***

Test specification: ***IEC 60947-4-1 (2009/09), IEC 60947-4-2 (2007/02),***
IEC 60947-5-1 (2009/07)

Test report No.: ***01082TEL + 03101TEL + 04038TEL + 10044TEI01 + 10044TEI02 +***
A&D ATS 6 / 03-M621/03-M621a + 10-E004352-BM-A01

Test report No.: ***01082TEL***

Test-sequence and sub-clause	**Test**	**Tested Device**
IEC 60947-4-1	(2000/11)	
Test-sequence I		
9.3.3.3	Verification of temperature-rise	3RK1301-0BB10-0AA2 3RK1301-0CB10-0AA2
9.3.3.1 and 9.3.3.2	Verification of operation and operating limits	3RK1903-0BA00 3RK1903-0AK00
9.3.3.4	Verification of dielectric properties	3RK1301-0BB10-1AA2 3RK1903-0AL00
Test-sequence III		
9.3.4	Performance under short-circuit conditions	3RK1301-0CB10-0AA2 3RK1903-0BA00 3RK1903-0AK00
IEC 60947-4-2	(1997/05)	
Test-sequence I		
9.3.3.3	Verification of temperature-rise	3RK1301-0AB20-0AA2 3RK1301-0CB20-0AA2
9.3.3.4	Verification of dielectric properties	3RK1903-0BA00 3RK1903-0AK00
Test-sequence II		
9.3.3.6.1.	Verification of thermal stability	3RK1301-0AB20-0AA2 3RK1903-0BA00
9.3.3.6.2.	Verification of overload capability	3RK1903-0AK00
9.3.3.6.3.	Verification of blocking and commutating, including verification of operating and operating limits	

Test summary

Certificate No.: 2554c

Test-sequence III 9.3.4	Performance under short-circuit conditions	3RK1301-0AB20-0AA2 3RK1301-0CB20-0AA2 3RK1903-0BA00 3RK1903-0AK00
Annex B	Verification of operation limits of the overload relay	3RK1301-0AB20-0AA2 3RK1903-0BA00 3RK1903-0AK00
With the results of the tests, specified above, the requirements of the IEC 60947-4-1 (2000-11) are fulfilled.		

Test report No.:*03101TEL*

Test-sequence and sub-clause	**Test**	**Tested Device**
IEC 60947-4-1 Test-sequence I 9.3.3.3 9.3.3.4	(2000/11) Verification of temperature-rise Verification of dielectric properties	 3RK1301-0CB10-0AA3 3RK1301-0CB20-0AA3 3RK1301-0AB20-0AA3 3RK1903-0CH20
EMC Immunity test 9.4.2.2 9.4.2.3 9.4.2.4 9.4.2.5	See Test report no.: A&D ATS 6 / 03-M621/03-M621a EMC-Laboratory Erlangen Electrostatic discharge Electromagnetic field Fast transient burst Surge (1,2/50µs – 1,2/80µs)	 3RK1301-0AB10-0AA3 3RK1301-0BB10-0AA3 3RK1301-0CB10-0AA3 3RK1301-0AB10-1AA3 3RK1301-0BB10-1AA3 3RK1301-0CB10-1AA3 3RK1301-0AB20-0AA3 3RK1301-0BB20-0AA3 3RK1301-0CB20-0AA3 3RK1903-0CH10 3RK1903-0CH20
EMC Emission test 9.4.3.1 9.4.3.2	 Conducted radio-frequency emission test Radiated radio-frequency emission test	 see EMC Immunity test

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Test summary

Certificate No.: 2554c

Test report No.:*04038TEL*

Test-sequence and sub-clause	Test	Tested Device
IEC 60947-4-1 Test-sequence I 9.3.3.4	(2000/11) Verification of dielectric properties	3RK1903-3ED10 3RK1903-3ED00 3RK1903-3EC10 3RK1903-3EC00
Test-sequence V 8.2.4	Verification of mechanical properties of terminals	3RK1903-3ED10 3RK1903-3ED00 3RK1903-3EC10 3RK1903-3EC00
Appendix C	Verification of degrees of protection of enclosed	3RK1903-3ED10 3RK1903-3ED00 3RK1903-3EC10 3RK1903-3EC00

Test report No.: *10044TEI01*

Test-sequence and sub-clause	Test	Tested Device
IEC 60947-4-1 Test-sequence I 9.3.3.3 9.3.3.1 and 9.3.3.2 9.3.3.4	(2009/09) Verification of temperature-rise Verification of operation and operating limits Verification of dielectric properties	3RK1301-0CB10-0AB4+ 3RK1903-0CK00 tested with 3RK1301-0BB10-0AB4+ 3RK1903-0AA00+ 3RK1903-0AG01+ 3RK1903-0AK00+ 3RK1903-0AK10+ 3RK1903-0BA00+ 6ES7131-4BB01-0AA0+ 6ES7134-4FB01-0AB0 6ES7138-4CA01-0AA0+ 6ES7151-1BA02-0AB0+ 6ES7193-4CD20-0AA0

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Test summary

Certificate No.: 2554c

Test-sequence and sub-clause	Test	Tested Device
Test-sequence III 9.3.4	Performance under short-circuit conditions	3RK1301-0CB10-0AB4 tested with 3RK1903-0AA00+ 3RK1903-0AK00+ 3RK1903-0BA00+ 6ES7131-4BB01-0AA0+ 6ES7138-4CA01-0AA0+ 6ES7151
  9.4.2	For EMC tests see test report 10-E004352-BM-A01 from EMC test center Erlangen Immunity	 see EMC test reports
  9.4.3	For EMC tests see test report 10-E004352-BM-A01 from EMC test center Erlangen Emission	 see EMC test reports

Test report No.: ***10044TEI02***

Test-sequence and sub-clause	Test	Tested Device
IEC 60947-5-1 Test-sequence I 8.3.3.3 8.3.3.4	(2009/07) Verification of temperature-rise Verification of dielectric properties	 3RK1301-0CB10-0AB4+ 3RK1903-0CK00 tested with 3RK1301-0BB10-0AB4+ 3RK1903-0AA00+ 3RK1903-0AG01+ 3RK1903-0AK00+ 3RK1903-0AK10+ 3RK1903-0BA00+ 6ES7131-4BB01-0AA0+ 6ES7134-4FB01-0AB0 6ES7138-4CA01-0AA0+ 6ES7151-1BA02-0AB0+ 6ES7193-4CD20-0AA0

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Test summary

Certificate No.: 2554c

Test-sequence and sub-clause	Test	Tested Device
Annex H.8.2 Annex H8.3 Annex H8.4	Voltage Drop Minimum operational current Off-state current	3RK1903-0CK00 tested with 3RK1301-0CB10-0AB4+ 3RK1903-0AA00+ 3RK1903-0AK00+ 3RK1903-0BA00+ 6ES7131-4BB01-0AA0+ 6ES7138-4CA01-0AA0+ 6ES7151
Annex H.8.5 IEC 60947-5-1 8.3.3.5.2 8.3.3.5.3	Making and breaking capacities Making and breaking capacities of switching elements under normal conditions Making and breaking capacities of switching elements under abnormal conditions:	3RK1903-0CK00 tested with 3RK1301-0CB10-0AB4+ 3RK1903-0AA00+ 3RK1903-0AK00+ 3RK1903-0BA00+ 6ES7131-4BB01-0AA0+ 6ES7138-4CA01-0AA0+ 6ES7151
Annex H.8.6 IEC 60947-5-1 8.3.4	Performance under conditional short-circuit current	3RK1903-0CK00 tested with 3RK1301-0CB10-0AB4+ 3RK1903-0AA00+ 3RK1903-0AK00+ 3RK1903-0BA00+ 6ES7131-4BB01-0AA0+ 6ES7138-4CA01-0AA0+ 6ES7151
H.8.7.2	For EMC tests see test report 10-E004352-BM-A01 from EMC test center Erlangen Immunity	see EMC test reports
H.8.7.3	For EMC tests see test report 10-E004352-BM-A01 from EMC test center Erlangen Emission	see EMC test reports

The tests were carried out on devices, representative for the whole series, fixed on page 6 and 7.

The tests were carried out in the accredited laboratory:

Prüflaboratorium der Siemens AG I IA CE Amberg
Werner-von-Siemens-Str. 48, 92220 Amberg
Accredited-No.: ***D-PL-11055-04-01***

The EMC-Tests were carried out in the accredited laboratory:

Siemens AG, EMV-Zentrum Erlangen
Günther-Scharowsky-Str. 21, 91058 Erlangen
Accredited-No.: ***DIT-P-G 149/98***

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Nomenclature breakdown

Certificate No.: 2554c

Series: 3RK13

3RK13	0	1	-	0A	B	1	0	-	0	AB4
I	**II**	**III**		**IV**	**V**	**VI**	**VII**		**VIII**	**IX**

I Basic Type 3RK13, motor starter

II Type of interface:

0 - PROFIBUS-DP

III Product type:

1 - Motor Starter ET 200 S

IV Setting Range:

0A	- 0,3 up to 3 A,	Class 5, 10A, 10, 15 or 20
0B	- 2,4 up to 8 A,	Class 5, 10A, 10, 15 or 20
0C	- 2,4 up to 16 A,	Class 5, 10A, 10, 15 or 20

V Type of enclosure:

B - Open type

VI Type of function:

1 - Electromechanical starter
2 - Soft starter

VII Version:

. - Manufacturer´s identification

VIII Mode of operation:

0 - Direct-on-line starter
1 - Reversing starter

IX Model:

AA2 - Standard model with interface for extension modules and electronic inputs are provided
AA3 - same as AA2 provided with Interface for local control
AA4 - same as AA3 provided with programmable parameter for circuit breaker in OFF-position
AB4 - High Feature Starter same as AA4 with DPV1

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Nomenclature breakdown

Certificate No.: 2554c

Series: 3RK1903

3RK1903	-	0	A	K	00
I		**II**	**III**	**IV**	**V**

I Accessories type 3RK1903 for Motor Starter ET 200 S Size S0

II Accessory groups:

0 - Accessories for motor starters
2 - Accessories for power supply
3 - Accessories for frequency inverter

III Type of accessories:

A - Terminal module
C - Brake module

IV Model design: Terminal module

K - module 65 mm for DS1e-x / DSS1e-x
L - module 130 mm for RS1e-x

IV Model design: Brake module

J - AC 400V
K - AC 400V with 2DI
B - DC 24V
C - DC 500V
E - DC 24V with 2DI
F - DC 500V with 2DI

V Type of terminal module

00 - With supply connection
10 - Without supply connection

Remarks

Certificate No.: 2554c

Test report no.: 01082TEL

Test sequence III: Performance under short-circuit conditions

For 3RK1301-.. only the maximum short circuit limits are tested. (Iq)
For test current "r" = 1 kA the combination 3RV1321-.. + 3RT1026-.. was built up separately.
See test report no.: 00010TML. The results of these tests are representative for 3RK1301-..

Test report no.: 04038TEL

The existing terminal module for frequency inverter has changed:

- Degree of protection increased from IP00 to IP20
- Shroud with bus-bar added

Therefore only the documented tests were carried out.
For not conducted tests see test report no.: 01082TEL

Test report no.: 10044TEI01

Tests are conducted cause of new High Feature Starter DPV1

Test report no.: 10044TEI02

Tests are conducted cause of new brake module 400V

Note: The test reports, mentioned in the test summary above, are still valid for the standard versions of: IEC 60 947-4-1 (2009/09), IEC 60947-4-2 (2007/02), IEC 60947-5-1(2009/07)

Auberg, 2010-11-30
Location, Date

(Tested by)
Assistant manager
Mr. Prechtl-Schöpf

(Reviewed by)
Laboratory Manager
Mr. Bogner

Technical data

Certificate No.: 2554c

Motor starter 3RK1301-..

Test item particulars:	
- kind of equipment.....:	AC motor starter
- number of poles.....:	3
- kind of current.....:	ac
- interrupting medium .....:	air
- method of operation .....:	automatic
- method of control.....:	manual / automatic
- method of change-over for particular types of starters ..:	electro magnetic
- method of connecting for particular types of starters .....:	load in delta, load in star
Rated and limiting values, main circuit:	
- rated operational voltage Ue (V) .....:	400 V
-rated stator operational voltage Ues (V) .....:	-
- rated rotor operational voltage Uer (V) .....:	-
- rated insulation voltage Ui (V).....:	500V
- rated stator insulation voltage Uis (V).....:	-.
- rated rotor insulation voltage Uir (V) .....:	-
- rated impulse withstand voltage Uimp(kV).....:	6 kV
- rated starting voltage of an auto-transformer starter(V).:	-
- conventional free air thermal current Ith (A).....:	3,0 A, 8 A, 16 A
- conventional enclosed thermal current Ithe (A) .....:	-
- conventional stator thermal current Iths (A) .....:	-
- conventional rotor thermal current Ithr (A) .....:	-
- rated operational current Ie (A) or rated operational powers.....:	0,3 A up to 3,0 A; 2,4 A up to 8 A, 2,4 A up to 16 A
- rated stator operational current Ies (A) or rated stator operational powers.....:	-
- rated rotor operational current Ier (A) :	-
- rated uninterrupted current Iu (A).....:	-
- rated frequency .....:	50 / 60 Hz
- rated duties.....:	-
Short-circuit characteristic:	
- rated prospective short-circuit current "r" (kA) .....:	400V / 1 kA
- rated conditional short-circuit current Iq (kA) .....:	400V / 50 kA
Rated and limiting values of the electronically controlled electro-magnet	
- kind of current.....:	-
- power consumption .....:	-

- rated frequency (or d.c.) .....:	-
- rated control circuit voltage Uc (nature: a.c. / d.c.) .....:	-
- rated control supply voltage Us (nature: a.c. / d.c.) .....:	-
- nature of external control circuit devices.....:	-
Rated and limiting values of air supply control circuit	
- rated pressure .....:	-
- volumes of air.....:	-
Rated and limiting values of relays and releases (overload relays)	
- types of relay or release.....:	☐ a) release with shunt coil (shunt trip) ☐ b) under voltage and under–current opening relay or release ☒ c) overload time-delay relay the time-lag of which is: ☐ 1) substantially independent of previous load (e.g. time-delay magnetic overload relay) ☐ 2) dependent on previous load (e.g. thermal or electronic overload relay) ☒ 3) dependent on previous load (e.g. thermal or electronic overload relay) and also sensitive to phase loss ☐ d) instantaneous over-current relay or release (e.g jam sensitive, see 3.2.29) ☐ e) other relays or releases (e.g., control relay associated with devices for the thermal protection of the motor ☐ f) Stall relay or release
- **characteristic values** a) release with shunt coil, under–voltage (under–current) opening relay or release.....:	
- rated voltage (current) .....:	-
- rated frequency .....:	-
- operating voltage (current) .....:	-
- operating time.....:	-
- inhibit time .....:	-
b) Overload relay**:**	
-designation and current settings .....: -rated frequency, when necessary (for example in case of a current transformer operated overload relay) .....: - time-current characteristics (or range of characteristics), when necessary.....: - trip class according to classification in table 2, or the value of maximum tripping time, in seconds, under the conditions specified in 8.2.1.5.1, table 2, column D, when this time exceeds 40 s. .....:	0,3 A - 3,0 A; 2,4 A - 8 A, 2,4 A - 16 A 50/60Hz available 5, 10A, 10, 15, 20
- number of poles .....:	3
Nature of the relay: thermal, magnetic, electronic electronic without thermal memory.....:	electronic overload relays with thermal memory

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Technical data

Certificate No.: 2554c

Brake module 3RK1903-...

Test item particulars:	
- kind of control circuit device ..... :	☐ Manual control switches, e.g. Push-buttons, rotary switches, foot switches, etc. ☐ electromagnetically operated control switches, either time delayed or instantaneous, e.g. Contactor relays ☐ pilot switches, e.g. Pressure switches, temperature sensitive switches (thermostats) ☐ position switches ☐ associated control equipment, e.g. Indicator lights, etc. ☒ **Brake module with semiconductor switching device**
- kind of switching elements ..... :	☐ auxiliary contacts of a switching device (e.g. Contactor, circuit-breaker, etc.) Which are not dedicated exclusively for use with the coil of that device ☐ interlocking contacts of enclosure doors ☐ control circuit contacts of rotary switches ☐ control circuit contacts of overload relays
- number of poles..... :	1 brake contact
- kind of current..... :	☒ a.c. and/or ☒ d.c.
- interrupting medium..... :	☐ air, ☐ oil, ☐ gas, ☐ vacuum, ☒ semiconductor
- operating conditions ..... :	
- method of operations ..... :	☐ manual ☐ electromagnetic ☐ pneumatic ☐ electro-pneumatic ☒ semiconductor switching
- method of control ..... :	☐ automatic ☐ non-automatic ☒ semi-automatic
- rated and limiting values for switching elements:	
- voltages:	
- rated operational voltage Ue (V) :	brake contacts: max. 400
- rated insulation voltage Ui (V) :	brake contacts: 500
- rated impulse withstand voltage Uimp (kV) :	brake contacts: 6
- currents:	
- conventional free air thermal current Ith (A) :	0,5

Technical data

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- conventional enclosed thermal current Ithe (A)	:	-
- rated operational current Ie (A)	:	brake contacts: AC15: 0,4A / 400V
- rated uninterrupted current Iu (A)	:	N/A
- rated frequency (Hz)	:	brake contacts: 50 / 60
Contact elements may be classified as follows:		
- utilization category (see clause 4.4)	:	brake contacts: AC-15
- electrical ratings based on utilization categories (see Annex A).	:	AC-15
- one of the following form letters (see figure 4)	:	☐ form A – single gap make-contact element ☐ form B – single gap break-contact element ☐ form C – single gap make-break three terminal change-over contact element ☐ form X – double gap make-contact element ☐ form Y – double gap break-contact element ☐ form Za – double gap make-break four terminal change-over contact element, same polarity ☐ form Zb – double gap make-break four terminal change-over contact element, electrical separated ☒ semiconductor switching device
- short-circuit characteristic:		
- rated conditional short-circuit current (kA)	:	Brake contact: 1 kA
- co-ordination of short-circuit protective devices	:	-
- type and maximum ratings of short-circuit protective device	:	Brake contact: integrated fuse 1 A
- IP code , in case of an enclosed control device	:	IP20