CERTIFICATE OF COMPLIANCE

Certificate Number	20190731-E45172
Report Reference	E45172-19790118
Issue Date	2019-JULY-31

Issued to: WAGO Kontakttechnik GmbH & Co. KG
Hansastrasse 27
32423 Minden GERMANY

This certificate confirms that representative samples of COMPONENT - TERMINAL BLOCKS
REFER ADDENDUM PAGE FOR MODELS

Have been investigated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.

Standard(s) for Safety: Terminal Blocks, UL1059

Additional Information: See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Recognized Component Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number	20190731-E45172
Report Reference	E45172-19790118
Issue Date	2019-JULY-31

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Component Terminal Blocks -

Cat. No. 238.
Cat. Nos. 280-101, -102, -104, -105, -641, -642, -651, -654, -698, -998.
Cat. Nos. 281-101, -102, -104, -105, -191.
Cat. Nos. 282-101, -102, -104, -105, -191, -681, -682, -684, -901, -902, -904, -992, -993
Cat. Nos. 283-101, -102, -104, -105, -191, -671, -672, -674, -901, -902, -904, -992, -998.
Cat. Nos. 284-601, -604, -605, -681, -682, -683 -684, -685, -686, -691, -901, -902, -903, -904, -905, -906, -992, -993.
Cat. No. 284-607/000-309.

Protective Conductor Terminal Blocks, Cat. Nos.

Cat. Nos. 280-107, -607, -637, -640, -677, -678, -687, -837, -907.
Cat. Nos. 281-107, -108, -607, -637, -657, -658, -687, -907.
Cat. Nos. 282-107, -607, -687, -907.
Cat. Nos. 283-107, -607, -609, -677, -907.
Cat. Nos. 284-107, -607, -687, -907.
Cat. Nos. 280-607, -637, -677, -687, -837, -907 all followed by Suffix /999-950.
Cat. Nos. 281-107, -607, -637, -657, -687, -907 all followed by Suffix /999-950.
Cat. Nos. 282-107, -687, -907 followed by Suffix /999-950.
Cat. Nos. 283-107, -607, -609, -677, -907 followed by Suffix /999-950.
Cat. Nos. 284-107, -607, -687, -907 followed by Suffix /999-950.



Bruce Mahrenholz, Director North American Certification Program

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File E45172
Project 78ME10160

January 18, 1979

REPORT

on

COMPONENT - TERMINAL BLOCKS

Wago Kontakttechnik GmbH
Goebenstrasse 52, D-4950
Minden, West Germany

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D E S C R I P T I O N

PRODUCT COVERED:

Component Terminal Blocks -

Cat. No. 238.
Cat. Nos. 280-101, -102, -104, -105, -641, -642, -651, -654, -698, -998.
Cat. Nos. 281-101, -102, -104, -105, -191.
Cat. Nos. 282-101, -102, -104, -105, -191, -681, -682, -684, -901, -902, -904, -992, -993
Cat. Nos. 283-101, -102, -104, -105, -191, -671, -672, -674, -901, -902, -904, -992, -998.
Cat. Nos. 284-601, -604, **-605**, -681, -682, **-683** -684, **-685**, **-686**, -691, -901, -902, **-903**, -904, **-905**, **-906**, -992, -993.
Cat. No. 284-607/000-309.

Protective Conductor Terminal Blocks, Cat. Nos.

Cat. Nos. 280-107, -607, -637, -640, -677, -678, -687, -837, -907.
Cat. Nos. 281-107, -108, -607, -637, -657, -658, -687, -907.
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Cat. Nos. 283-107, -607, -609, -677, -907.
Cat. Nos. 284-107, -607, -687, -907.
Cat. Nos. 280-607, -637, -677, -687, -837, -907 all followed by Suffix /999-950.
Cat. Nos. 281-107, -607, -637, -657, -687, -907 all followed by Suffix /999-950.
Cat. Nos. 282-107, -687, -907 followed by Suffix /999-950.
Cat. Nos. 283-107, -607, -609, -677, -907 followed by Suffix /999-950.
Cat. Nos. 284-107, -607, -687, -907 followed by Suffix /999-950.

GENERAL:

These are multi-circuit terminal blocks which provide cage-type clamping spring terminals for termination of copper conductors. Series 280, 281, 282, and 284 terminal blocks are intended for track-mounting to form multi-circuit units of indefinite length, and are similar in design except for size and rating. Series 238 is printed circuit board mounted terminal block and is provided in 1 through 48 pole units.

Cat. No. 284-607/000-309 is for low voltage application and only for factory wiring.

Grounding - Type terminal blocks Series 280, 281, 282, 283, 284 employ cage-type clamping spring terminals and are intended for track-mounting. The grounding-type blocks are not assigned a current or voltage rating; and are suitable for field and factory wiring. See Pages 1A and 1B for ratings, suffix numbers and variations.

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The following terminal blocks are intended for general industrial and commercial applications, field and factory wiring.

Ratings -

Series No.	Wire Range AWG - Cu	Max Amperes	Max Volts
238	No. 18-14	10	300
280	No. 28-12	20	600
281	No. 28-12	20	600
282	No. 24-10	30	600
283	No. 24-6	65	600
284#	No. 24-8	50	600

Except Cat. No. 284-607/000-309.

The following nongrounding terminal blocks are intended for general industrial and commercial applications, factory wiring.

Cat. No.	Wire Range AWG - Cu	Max Amperes	Max Volts	For Use On Mounting Rail#
284-607/000-309	No. 24-8	50	50	Cat. No. 210-198

Copper alloy, 35 by 15 by 2.3 mm, length 200 mm.

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The following grounding blocks are for general industrial and commercial applications, field and factory wiring.

Series	Suffixes	Wire Range AWG-Cu	For Use On Mounting Rail #
280	-107 (1)	No. 28-12	1-6 incl.
280	-607 (1)	No. 28-12	1-6 incl.
280	-637 (1)	No. 28-12	1-6 incl.
280	-640	No. 28-12	1-6 incl.
280	-677 (1)	No. 28-12	1-6 incl.
280	-678	No. 28-12	1-6 incl.
280	-687 (1)	No. 28-12	1-6 incl.
280	-837 (1)	No. 28-12	1-6 incl.
280	-838	No. 28-12	1-6 incl.
280	-907 (1)	No. 28-12	1-6 incl.
281	-107 (1)	No. 28-12	1-6 incl.
281	-108	No. 28-12	1-6 incl.
281	-607 (1)	No. 28-12	1-6 incl.
281	-637 (1)	No. 28-12	1-6 incl.
281	-657 (1)	No. 28-12	1-6 incl.
281	-658	No. 28-12	1-6 incl.
281	-687 (1)	No. 28-12	1-6 incl.
281	-907 (1)	No. 28-12	1-6 incl.
282	-107 (1)	No. 24-10	1-6 incl.
282	-607 (1)	No. 24-10	1-6 incl.
282	-687 (1)	No. 24-10	1-6 incl.
282	-907 (1)	No. 24-10	1-6 incl.
283	-107 (1)	No. 24-6	1-5 incl.
283	-607 (1)	No. 24-6	1-5 incl.
283	-609 (1)	No. 24-6	1-6 incl.
283	-677 (1)	No. 24-6	1-6 incl.
283	-907 (1)	No. 24-6	1-6 incl.
284	-107 (1)	No. 24-8	1-6 incl.
284	-607 (1)	No. 24-8	1-6 incl.
284	-687 (1)	No. 24-8	1-6 incl.
284	-907 (1)	No. 24-8	1-6 incl.

(1) May be followed by /999-950.

Mounting Rails - Grounding blocks tabulated above are intended for use with the following mounting rails:

1. Copper alloy, 35 by 15 by 2.3 mm
2. Plated steel, 35 by 15 by 2.3 mm
3. Copper alloy, 35 by 15 by 1.5 mm
4. Plated steel, 35 by 15 by 1.5 mm
5. Copper alloy, 35 by 7.5 by 1.0 mm
6. Plated steel, 35 by 7.5 by 1.0 mm

Note - Grounding terminal blocks have no assigned voltage or ampere rating.

Suffixes - Suffix /999-950 is assigned for commercial purposes. Cat. Nos. assigned this Suffix are identical to the same Cat. No. without Suffix /999-950.

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Cat. No. Designation

Suffix Nos.	Description	Ill. No.
-107	Front entry, two terminals	5
-108	Top entry, two terminals.	15
-607	Top entry, two terminals, standard body	4
-609	Top entry, one terminal.	16
-637	Angled entry, three terminals	6
-640	Angled entry, three terminals	6
-657	Top entry, four terminals	14
-658	Top entry, four terminals	14
-677	Top entry, four terminals	9
-678	Top entry, four terminals	9
-687	Top entry, three terminals	7
-837	Top entry, four terminals	9
-838	Top entry, four terminals	9
-907	Top entry, two terminals, high profile body	11,12

* Cat. No.		
* 284-607/000-309	Top entry, two terminals, standard body	10

Terminal Block Cat. No. Designation -

Series 280, 281, 282 and 283 may be provided with the following Suffixes.

Suffix Nos.	Description
-101	35 DIN 46277 mounting track
-102	32 DIN 46277 mounting track
-104	Similar to -101 except blue in color
-105	Similar to -102 except blue in color
-191	Similar to -101 except provided with raised lettering at closed end. Light grey or grey.

Series 280 may be provided with the following Suffixes -

-641	35 DIN track, front operated clamping spring, grey body
-642	32 DIN track, front operated clamping spring, grey body
-651	Same as -641 except blue body
-654	Same as -641 except orange body
-698	Similar to -641 except provided with raised lettering at closed end. Light grey or grey.

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Series 280, 282, 283, 284 may be provided with the following Suffix Nos. denoting light grey color, and are otherwise identical to the Suffix No. specified.

	Cat./Suffix Nos. (Light Grey Body)	Same as Cat./Suffix No.
	280-998	280-641
	282-992	282-901
	282-993	282-681
	283-992	283-901
*	**283-998**	283-671
	284-992	284-901
	284-993	284-681
	284-607/000-309	284-607

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Series 282, 283 and 284 may be provided with the following Suffixes.

-901 2-wire, through terminals, grey body
-902 2-wire, through terminals, blue body
-904 2-wire, through terminals, orange body

Series 282 and 284 may be provided with the following Suffixes.

-681 3-wire, through terminals, grey body
-682 3-wire, through terminals, blue body
-684 3-wire, through terminals, orange body

Series 283 may be provided with the following Suffixes.

-671 3-wire, through terminals, grey body
-672 3-wire, through terminals, blue body
-674 3-wire, through terminals, orange body

Series 284 is provided with the following Suffixes:

-601 Top wire entry, two terminals, grey body
-604 Top wire entry, two terminals, blue body
-605 Top wire entry, two terminals, black body

-691 Similar to -601 except provided with raised lettering at closed end. Light grey or grey.

-683 Similar to -681 except body in red color
-685 Similar to -681 except body in black color
-686 Similar to -681 except body in yellow color
-903 Similar to -901 except body in red color
-905 Similar to -901 except body in black color
-906 Similar to -901 except body in yellow color

Note - Cat. Nos. 284-601, -604, -691 are nongrounding versions of Cat. No. 284-607. See Ills. 10 and 13 for dimensions.

Note - Cat. No. 284-607/000-309 is identical to 284-607 except for light grey body and it is a nongrounding version. See Ill. 10 for dimensions.

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The following terminal block models have optional 3-phase short circuit current rating evaluated for use with copper conductors only. The terminal blocks must be protected by the max ampere and class of overcurrent protective device noted below.

Cat. No.	Suitable Conductors kcmil/AWG		Overcurrent Protection Fuse Required Class/Max Amp Rating						SCCR, RMS Sym, kA	Volts Max
	Line	Load	J	T	RK1	RK5	G	CC		
280-607 280-637 280-640 280-641 280-651 280-654 280-677 280-678 280-687 280-837 280-838 280-907 280-998 281-607 281-637 281-657 281-658 281-687 281-907	14-12 AWG	14-12 AWG	100	100	60	30	60	30	100	600
282-607 282-681 282-682 282-684 282-687 282-901 282-902 282-904 282-907 282-992 282-993	14-10 AWG	14-10 AWG	100	100	60	30	60	30	100	600

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Short Circuit Ratings (continued):

Cat. No.	Suitable Conductors kcmil/AWG		Overcurrent Protection Fuse Required Class/Max Amp Rating						SCCR, RMS Sym, kA	Volts Max
	Line	Load	J	T	RK1	RK5	G	CC		
283-607 283-671 283-672 283-674 283-677 283-901 283-902 283-904 283-907 283-992 283-998	14-6 AWG	14-6 AWG	100	100	60	30	60	30	100	600
283-607 283-671 283-672 283-674 283-677 283-901 283-902 283-904 283-907 283-992 283-998	**6 AWG**	**6 AWG**	**150**	**150**	**100**	**60**	**60**	**30**	**100**	**600**

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ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE USE):

Use - For use only with products where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of Acceptability -

1. The mounting suitability shall be determined in the end use.

2. These devices have been investigated for field-wiring and factory wiring applications.

3. The cage type clamping spring terminals are suitable for use with stranded and solid copper conductors of the sizes specified.

* 4. Insulating Material – R/C Plastic (QMFZ2). Refer to Sec. Gen. for manufacturer and type. The use of these materials shall be judged in the end-use application. These materials may be used interchangeably at 105°C.

5. These terminal blocks may be suitable for other than industrial and commercial applications provided that spacings, insulation, heat rise, etc. are acceptable in the end-use.

6. Series 280, 281, 282, 283, 284 grounding blocks covered by this report comply with Short Time Current requirements in UL 467 Standard for Grounding and Bonding Equipment, Seventh Edition.

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7. Accessories: The manufacturer may provide marking strips, test plug adaptors, shorting bus, stack-mounting hardware, etc., the suitability of which shall be determined in the end use.
8. Cat. No. 284-607/000-309 may only be used mounted on mounting rail with Cat. No. 210-198. The mounting rail will be carrying up to 50 amperes and the mounting of the rail on its basement shall be determined in the end product.
9. Accessories: The manufacturer provides Copper alloy mounting rail Cat. No. 210-198 with over all dimension 35 by 15 by 2.3 mm, length 200 mm for use with Terminal block Cat. No. 284-607/000-309.

10. The terminal block short-circuit rating on Cat. Nos. 280-607, 280-637, 280-640, 280-641, 280-651, 280-654, 280-677, 280-678, 280-687, 280-837, 280-838, 280-907, 280-998, 281-607, 281-637, 281-657, 281-658, 281-687, 281-907, 282-607, 282-681, 282-682, 282-684, 282-687, 282-901, 282-902, 282-904, 282-907, 282-992, 282-993, 283-607, 283-671, 283-672, 283-674, 283-677, 283-901, 283-902, 283-904, 283-907, 283-992, 283-998, 284-601, 284-604, 284-607, 284-681, 284-682, 284-684, 284-687, 284-691, 284-901, 284-902, 284-904, 284-907, 284-992 and 284-993 were determined based on testing in a minimum size enclosure measuring 12 x 10 x 8.25 inches. The suitability of smaller enclosures shall be determined in the end-use investigation.

11. The Protective Conductor Terminal Blocks, Series Nos. 280, 281, 282, 283, 284 covered by this report comply with Short Time Current Sequence requirements (clause 50) in UL1059 Standard for Terminal Block, Fourth Edition, revised December 15, 2006. These grounding terminals are intended for use with the specified DIN mounting rails (Width by Height by Thick / Material type):

- **35 by 7.5 by 1.0mm / Plated Steel**
- **35 by 15 by 1.5mm / Plated Steel**
- **35 by 15 by 2.3mm / Plated Steel**
- **35 by 15 by 2.3mm / Copper**
- **35 by 7.5 by 1.5mm / Aluminum.**

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12. End and intermediate plate – R/C Plastic (QMFZ2) same as insulating material of Housing, min thick. as specified in table below. Refer to Ills. as specified in table below for overall dimensions. Required to be mounting on the last, open type terminal block series 281.

End and intermediate plate cat. Nos.	Terminal Block Cat. Nos.	Min thickness	Dimensions
281-301 281-302	281-101, 281-102, 281-104, 281-105, 281-107, 281-108	0.8 mm	See Ill. 17
281-312 281-313 281-357	281-637 281-637/999-950	0.8 mm	See Ill. 18
281-334 281-335 281-345	281-657 281-657/999-950 281-658	0.8 mm	-
281-324 281-326 281-355	281-687	0.8 mm	See Ill. 19
281-328 281-329 281-349	281-907	0.8 mm	See Ill. 20
281-316 281-317	281-607	0.8 mm	See Ill. 21

13. Separator – R/C Plastic (QMFZ2) same as insulating material of Housing, min thick. as specified in table below. Refer to Ills. as specified in table below for overall dimensions.

Separator cat. Nos.	Terminal Block Cat. Nos.	Min thickness	Dimensions
281-322 281-332	281-101, 281-102, 281-104, 281-105, 281-107, 281-108	0.8 mm	See Ill. 22
281-318 281-348 281-358	281-637 281-637/999-950	0.8 mm	See Ill. 21
281-338 281-339 281-347	281-657 281-657/999-950 281-658	0.8 mm	-
281-344 281-346 281-356	281-687	0.8 mm	See Ill. 19
281-330 281-331 281-350	281-907	0.8 mm	See Ill. 23
281-327	281-607	0.8 mm	-

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14. All Series 238, 280, 281, 282, 283 and 284 may be followed by suffixes,

e.g. 282-xxxx/up to 40 digits

where "x" may be any number (including characters) to represent integrated color or printing variants, customer numbers, marking strips, test plug adaptors, shorting bus and stack-mounting hardware etc. All these variants do not affect critical properties of the basic models. In case of new ratings or construction modification the suitability of which shall be additionally evaluated or determined in the end use application.

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