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MAY 5 1987

OFFICE	REXDALE, ONTARIO	REPORT No.	LR 12400-132
DATE	April 9, 1987	BY	M. Murga, P. Eng.

SUBMITTOR

Weidmuller Terminations Ltd.
10 Spy Court
Markham, Ont. L3R 5H6

Attention: Mr. Ross Ashford

FACTORY

C.A. Weidmuller KG
Industriegebiet am Gelskamp.
Detmold, Germany

PRODUCT

Class No 6228 01

Supplementary certification of terminal blocks, 10A, 300V, Types SAKR, SAKR/35 for No 24 to 12 AWG stranded or solid copper conductors, Types SAKRC, SAKRD, SAKRD/35, SAKRF, SAKRT, SAKRL, SAKRLB for No 22 to 12 AWG solid and stranded copper conductors, to cover compliance with Standard C22.2 No 158-M1984.

Note: These terminal blocks are Certified as components for use only in Certified equipment where the suitability of the combination is determined by the Canadian Standards Association.

DECLARATION

The product, as described in this report, complies with:

- CSA Standard C22.2 No 0-M1982 - General Requirements - Canadian Electrical Code, Part II
- 158-M1984 - Terminal Blocks

MARKINGS

The submittor's name or tradename "WEIDMULLER", type designation (SAKR, etc.), rating (voltage, current and/or wire size range), the CSA Monogram, type designation (per Table 1 of CSA Standard C22.2 No 158-M1984) and the assigned torque value (if other than specified in CSA Standard C22.2 No 158-M1984) are moulded or ink-stamped in a permanent manner on each terminal block. Alternatively, the Submittor's name or tradename "WEIDMULLER" and type designation (SAKR, etc.), are moulded or ink-stamped in a permanent manner on each terminal block and the complete above marking appears on the shipping container.

ALTERATIONS

The markings are as shown under "Markings", above.
A123/1/mwb

It is the Submittor's responsibility to ensure that the CSA Mark is applied to this product only when the product complies with this report.

The name of the Association is protected by letters patent of incorporation and its certification marks "CSA" and "CS" are registered. CSA Marks and reports shall be used only in the manner and for the purposes authorized by CSA.

FILE

ALTERATIONS

The markings are as shown under "Markings", above.

FACTORY TESTS

None.

DESCRIPTION

PART A - Type SAKR

General: The subject terminal block is similar in construction to the Type SAKR previously Certified in LR 12400-34, and is designed for modular rail mounting on the submitter's Type TS32 mounting rail. Refer to Figs 1 through 11 and 13 for drawings and photograph. A complete description follows.

1. Body: Moulded melamine, or polyamide (Nylon 6.6), types, manufactures, and Flammability classifications are as listed below. Overall dimensions are approx 38.0mm high, by 42.0mm wide, by 6.5mm deep.

Polyamide (Nylon 6.6) Materials:

- (a) BASF "Ultradid", material designation A3K, rated UL 94V-2.
 - (b) Imperial Chemical Industries "Maranyl", material designation A127, rated UL 94V-2.
 - (c) Wellman GmbH, material designation PA-66-HWL, rated UL 94V-2.
 - (d) Bayer AG, material designation KLI-2208H, rated UL 94V-0.
2. Current Bar: Tin/lead plated brass, approx 0.8mm thick stock. Overall dimensions are approx 16.0mm long, by 8.5mm high. Two provided.
 3. Clamp: Zinc plated steel, approx 0.9mm thick stock. Overall dimensions are approx 9.9mm long, by 4.2mm wide, by 6.4mm deep. Two provided.
 4. Clamping Screw: Nickel plated steel, approx 11.5mm long, by 3.9mm in dia (max). Test socket type or slot head type.
 5. Jumper: Moulded of the same materials as the body, incorporating a tin/lead plated steel contact bar. Overall dimensions are approx 19.0mm long, by 4.0mm wide, by 13.4mm high. Contact bar material is approx 0.4mm thick.
 6. Cover: Moulded of the same materials as the body. Overall dimensions are approx 21.8mm long, by 10.8mm wide, by 1.2mm thick.
 7. Mount Spring: Steel, approx 1.3mm stock dia.
 8. Mounting Rail: Zinc plated steel, approx 1.0mm thick, Weidmuller Type TS32.

PART B - Type SAKR/35

General: The subject terminal block is similar to the Type SAKR of Part A, except that it is for use with the submittor's Type TS35 mounting rail.

PART C - Type SAKRC

General: The subject terminal block is similar to the Type SAKR of Part A.

PART D - Type SAKRD

General: The subject terminal block is similar to the Type SAKR of Part A, except for the jumper which is separate from the terminal block. Refer to Figs 1, 11 and 16 for drawings and photograph.

9. Jumper: Moulded of the same materials as the body of Part A, incorporating two tin/lead plated brass contacts which may be externally wired. Overall housing dimensions are approx 35.0mm long by 6.0mm wide by 25.0mm high. Overall contact dimensions are approx 21.0mm long by 9.0mm wide by 0.5mm thick stock.

PART E - Type SAKRD/35

General: The subject terminal block is similar to the Type SAKRD of Part D, except is for use with the submittor's Type TS35 mounting rail.

PART F - Type SAKRF

General: The subject terminal block is similar to the Type SAKR of Part A, except for incorporating quick connect terminals in place of one of the screw clamp terminals. Refer to Figs 1 and 12 for literature.

10. Terminal: Tin/lead plated brass, quick connect type, approx 0.8mm thick.

PART G - Type SAKRT

General: The subject terminal block is similar to the Type SAKR of Part A, except that one screw clamp type terminal is replaced with a wire wrap terminal. Refer to Figs 1 and 13 for literature.

11. Wire Wrap Terminal: Plated copper alloy. Overall dimensions are approx 46.0mm long by 1.6mm by 0.8mm.

PART H - Type SAKRL

General: The subject terminal block is similar to the Type SAKR of Part A, except that one screw clamp terminal is replaced with a solder lug terminal. Refer to Figs 1, 13, 14 and 17 for literature and photograph.

12. Solder Lug Terminal: Tin/lead plated brass. approx 0.8mm thick. Overall dimensions are approx 27.0mm long, by 3.0mm wide.

PART I - Type SAKRL

General: The subject terminal block is similar to the Type SAKR of Part A, except for incorporating solder lug terminals in place of both screw clamp terminals. The solder lug terminals are the same as that described in Part II. Refer to Figs 1, 14 and 17 for literature and photograph.

TESTS

Refer to the following test results for the Type SAKR, which is representative of all of the terminal blocks covered by this report.

CSA Std. No: C22.2 No 158-M1984.

Manufacturer: Weidmuller

Model or Cat No: SAKR

Product: Terminal Block

Tested By: A. Dias, S. Clark

Reviewed By: F. Cramer

Rated: 10A, 300V

Date: 87/01/21

Date: 87/01/27

Tests	Dielectric Strength	Oven Temp	Samples					
			1	2	3	4	5	6
Pullout (pressure)(27N)	-	-	-	-	OK	OK	-	-
Conductor Size	-	-	12	12	24	24	18	18
Conductor Material*	-	-	Cu	Cu	Cu	Cu	Cu	Cu
Conductor Gauge**	-	-	SOL	SOL	STR	STR	STR	STR
Accelerated Aging 105C 7 Day	-	-	OK	OK	OK	OK	OK	OK
Dielectric Strength:								
Live Parts	1600V	-	OK	OK	OK	OK	OK	OK
Live Parts and Rail	1600V	-	OK	OK	OK	OK	OK	OK
Verification of Support	-	-	OK	OK	OK	OK	OK	OK
Torque 0.5Nm	-	-	OK	OK	OK	OK	OK	OK
Overtorque								
110 percent by 0.5Nm	-	-	OK	OK	OK	OK	OK	OK
Wire Stranding	-	-	-	-	11	11	16	16

* CU - Copper ** SOL - Solid Conductor
 AL - Aluminum STR - Stranded Conductor
 Value specified by submitter

CSA Std. No: C22.2 No 158-M1984.

Manufacturer: Weidmuller Product: Terminal Block

Model or Cat No: SAKK Tested By: A. Dias, S. Clark Date: 87/01/21

Reviewed By: F. Cramer Date: 87/01/27

<u>Static Heating Sequence</u>	2 Samples	2 Samples	2 Samples
Wire Size or Combinations	12	12	18
Conductor Material	Cu(Sol)	Cu(STR)	Cu(STR)
Tightening Torque	0.5Nm	0.5Nm	0.5Nm
Test Current, Amps	10A (rated)	10A (rated)	-
Wire Stranding	-	7	16

Secureness Test

Bushing Dia, mm	9.5	9.5	6.5
Height, mm	279	279	260
Weight, kg	0.9	0.9	0.45
Results	OK	OK	OK

Static Heating Test Repeat

	Temp - Deg C					
Sample 1	31	31	31	30	30	30
Sample 2	31	31	31	31	31	31
Sample 3	31	31	31	31	31	31
Room Ambient	22	22	22	22	22	22

Pullout Tests

Force Applied, N	45	45	4
Results	OK	OK	OK

Torque value specified by submittor.

TYPE (LR-12400)	Electrical Data		Cat.No. For Rail Mounting			
	Voltage Terminal	AMP AWG	TS 15	TS32	TS 35	
SAKR (- 34)	SAKR/35 ()	300V SC/SC	10A 24-12	4127.2 4127.6 4120.2 4120.6	4121.2 4121.6 4122.2 4122.6 4122.8	1721.6 1033.6
SAKRC (- 34)		300V SC/SC	10A 22-12			
SAKRD (- 23)	SAKRD/35 ()	300V SC/SC	10A 22-12		<u>4131.6</u> 5464.6	1857.6
SAKRF (- 52)		300V SC/SC	10A 22-12		6636.6	
SAKRT (- 25)		300V SC/WN	10A 22-12		4693.6	
SAKRL		300V SC/SL	10A 22-12		4123.6 <u>4124.6</u> 4125.6 4123.0	
SAKRLL		300V SL/SL	10A 22-12		<u>4644.6</u> 2942.6	

FIGURE 1.



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OFFICE REXDALE, ONTARIO	REPORT No. LR 12400-143
DATE November 20, 1987	BY R. Carter, E.I.T. REVIEWED BY D. Hay, P. Eng.

SUBMITTOR

Weidmuller Terminations Ltd.
10 Spy Court
Markham, Ont. L3R 5H6

Attention: Mr. Ross Aishford
Technical Applications Manager

FACTORY

C.A. Weidmuller KG
Industriegebiet am Gelskamp
Detmold, Germany

PRODUCT

Class No 6228 01

PART A - Modular micro rail mounting terminal blocks, Series AKZ4, 10A, 300V, Nos 12 to 24 AWG, Types AKZ4, AKZ4ex, AKZ4L, AKZ4L/10, AKZ4LL, AKZ4LL/10, AKZ4S, AKZ4SF, AKZ4SS, AKZ4ST, AKZ4T, AKZ4TT, AK4/10, AK4M/10, AK4T/10, AKZ4/10 and AKZ4W2.

Note: These terminal blocks are Certified as components for use only in Certified equipment where the suitability of the combination is determined by the Canadian Standards Association.

PART B - Deletion of Series AKS terminal blocks per the submitter's letter dated April 29, 1987.

DECLARATION

The product, as described in this report, complies with:

CSA Standard C22.2 No 0-M1982 - General Requirements - Canadian Electrical Code, Part II
158-M1984 - Terminal Blocks

MARKINGS

The submitter's name, tradename or registered trademark (i.e. "WEIDMULLER" or "CAW" or W and smaller letters CA in a circle), the CSA Mark, the catalogue/type number, the complete electrical rating in volts and amperes and the conductor range are moulded, die-stamped or permanently ink-stamped on each terminal block. The assigned torque value and installation instructions (if applicable) are provided on or in the smallest packaging unit.

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It is the Submitter's responsibility to ensure that the CSA Mark is applied to this product only when the product complies with this report.

The name of the Association is protected by letters patent of incorporation and its certification marks "CSA" and "CS" are registered. CSA Marks and reports shall be used only in the manner and for the purposes authorized by CSA.

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ALTERATIONS

The markings are as indicated in "Markings" above.

FACTORY TESTS

The equipment at the conclusion of manufacture, before shipment, shall withstand for one min. without breakdown, the application of 1000V ac between live parts and exposed non-current-carrying metal parts. The factory test may be made at existing room temperature. As an alternative, a potential 20 percent higher may be applied for one sec.

Warning: The factory test(s) specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimize the possibility of injury.

DESCRIPTION

General: These modular micro rail mounting terminal blocks use the same moulded body and differ only in the wire termination method and/or the shape or the current carrying bar. The catalogue/type number, electrical rating and wire size, the termination method and previous Certification Reports (where applicable) are as indicated below:

Type	Figure(s)	Electrical Data		Cat No For Rail Mounting	File (LR 12400)
		Voltage	AMP Terminal AWG		
AKZ4	5	300V	10A	2943.2	-7, -13, -23
		SC/SC	24-12 AWG	(Supercedes AKS) 2943.6	-61, -62, -63
AKZ4ex	13,14	300V	10A	5108.3	-7, -13, -23
		SC/SC	24-12 AWG		-61, -62, -63

NOTE: Insulating Material - STAMIN (.3)

AKZ4L (Previously AKL)	7	300V	10A	3348.2	3348.6	-13, -23
		SC/SL	24-12 AWG	3348.8		
AKZ4L/10 (10 Way)	15	300V	10A	4838.6 (with tags)		-13
		SC/SL	24-12 AWG	4837.6 (no tags)		
AKZ4LL	7	300V	10A	3464.2		-13
		SL/SL	24-12 AWG	3464.6		
AKZ4LL/10 (10 Way)	7	300V	10A	3629.6 (no tags)		-13
		SL/SL	24-12 AWG	3630.6 (with tags)		
AK4M/10 (20) (10 Way)	17	300V	10A	3859.6		-20
		SC/FC	24-12 AWG	(Moduflex Pins)		

NOTE: FC-2 Socket Connections (female) for Moduflex Pins

<u>Type</u>	<u>Figure(s)</u>	<u>Electrical Data</u>		<u>Cat No</u>	<u>File</u>
		<u>Voltage</u>	<u>AMP</u>	<u>For Rail Mounting</u>	<u>(LR 12400)</u>
		<u>Terminal AWG</u>			
AKZ4S	12, 16	300V SC/QC	10A 24-12 AWG	3244.6	-20
AKZ4SF	16	300V SC/QC	10A 24-12 AWG	1587.6	-
AKZ4SS	12	300V QC/QC	10A 24-12 AWG	3245.6 3624.6	-20
AKZ4ST	9	300V QC/WW	10A 24-12 AWG	4392.6 3515.6	4624.6 -20'
AKZ4T	8	300V SC/WW	10A 24-12 AWG	3440.6 3441.6 4392.6	3664.6 4018.6 4458.6 -20
AKZ4TT	10, 11	300V WW/WW	10A 24-12 AWG	3719.6 4426.6 6428.6	-20
AKZ4/10 (10 Way)	6	300V SC/SC	10A 24-12 AWG	3595.6 3596.6 (with tags)	-7, -13, -23 -61, -62, -63
AK4/10 (10 Way)	6	300V SC/SC	10A 24-12 AWG	3665.6 4695.6 (with tags)	-23
AK4T/10 (10Way)	9	300V SC/WW	10A 24-12 AWG	3724.6	-
AKZ4W2 (10 Way)	11	300V WW/WW	10A 24-12 AWG	3640.6	-

1. Body: Moulded nylon polyamid (PA66) thermoplastic*, beige, light brown and blue; dimensions, etc. as shown in Fig 1.

Manufacturers and their material designations as follows:

- (a) BSAF "Ultramid", material designation A3K, rated UL94V-2.
- (b) Imperial Chemical Industries "Maranyl", material designation A127, rated UL94V-2.
- (c) Wellman GmbH, material designation PA-66-HWL, rated UL94V-2.
- (d) Bayer AG, material designation KLI-2208H, rated UL94V-0.

The following suffixes in the catalogue numbers of the above terminal blocks are used to denote the various materials (a), (b), (c), (d) shown above:

- "1.0" denotes light brown material (d), above;
- "1.6" denotes beige materials (a), (b), (c), above;
- "1.8" denotes blue materials (a), (b), (c), (d), above.

*Note: Cat No AKZ4ex is moulded of melamine, Type FS156, designated "STAMIN", manufactured by Weidmuller.

2. Clamping Screw Terminals:

- (i) Clamps: Zinc plated steel; dimensions, etc. as shown in Figs 2 and 4,
- (ii) Clamping Screws: Zinc plated steel; dimensions, etc. as shown in Figs 3 and 4.

3. Current Carrying Current Bar: Lead/tin plated brass; approx 1.4mm stock thickness. The shape of the current carrying bar varies with the termination type of the terminal block.

4. Current Carrying Solder Lugs: Lead/tin plated brass. The solder lugs are an integral part of the current carrying bar; approx 0.7mm stock thickness. The solder lug is integral with the current carrying bar that may have solder lug termination on the other end or other suitable termination.

5. Current Carrying Quick Connects: Lead/tin plated brass. The quick connects are an integral part of the current carrying bar; approx 0.8mm stock thickness. The termination may have one or more quick connects on one or both ends of the current carrying bar or may have other suitable termination on one end.

6. Wire Wrap Post: Copper alloy, lead/tin plated; approx 0.8mm stock thickness. The wire wrap posts are welded to the current carrying bar described in Item 3: Current Carrying Bar. The wire wrap posts may also be welded to Item 5: Current Carrying Quick Connects.

PART B: Deletion of Series AKS terminal blocks per the submittor's letter dated April 29, 1987; the Series AKS is superseded by AKZ4(2493.2).

TESTS

Due to similarities with previously Certified devices covered in the certification reports referenced above, on the following tests were considered necessary.

Manufacturer: Weidmuller

Reviewed by:

Date: September 17, 1987

CSA Standard C22.2 No 158-M1984

The following samples were checked for spacings (Type D only). All are rated 300V, 10A.

<u>Cat No</u>	<u>Results</u>	<u>Remarks</u>
AKZ4L 3348.6	ok	- Checked with 12 AWG 7 Strand.
AKZ4LL 3464.6	ok	- Sample use solder pins to attach conductors.
AKZ4ST 3515.6	ok	- Checked with Certified T & B quick connects uninsulated 0.250 in by 0.031 in
AKZ4T 4018.6	ok	- Checked with 12 AWG 7 Strand, sample also uses a wire wrap pin.
AKZ4S 3244.6	ok	- Checked with 12 AWG 7 Strand, and Certified T & B quick connect uninsulated 0.110 in by 0.031 in.
AKZ4SS 3624.6	ok	- Checked with Certified T & B quick connects, uninsulated 0.110 in by 0.031 in.

The following samples were checked for verification of attachment..., Cl 6.9

<u>Cat No</u>	<u>Results</u>	<u>Remarks</u>
AKZ4 2943.6	ok	-
AK4M/10 3859.6	ok	-