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Please note, Follow-Up Procedure Revisions or Report Revisions do not include Authorization Pages, Indices, Section General, and/or Appendices unless revisions were required or requested.

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Please find attached the related material on Project 4790551685

For your convenience, the below describes the related updates:

For revised/new documentation, please reference 2022-11-23 in the page headings. Volume(s) 1 Section(s) 2 were added.

E520314-vol1-Index
E520314-20221123-CertificateofCompliance
E520314-20221123-Description
Figure-6-Total
Illustration-3-Total
E520314-20221123-TestRecord

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				Revised:	2022-11-23

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Models	Section	Issue Date	USR	CNR
Power Circuit and Motor-mounted	1	2021-06-17	Х	Х
Apparatus, Current Transformer, model				
AKH-0.66/TD-50III, AKH-0.66/TD- Φ 60, AKH-				
0.66/TD-80III, AKH-0.66/TD- Φ 70.				
Power Circuit and Motor-mounted	2	2022-11-23	Х	х
Apparatus, Current Transformer, models				
АКН-0.66 К-Ф16-М, АКН-0.66 К-Ф16-U, АКН-				
0.66 К-Ф24-М, АКН-0.66 К-Ф24-U, АКН-0.66				
К-Ф24-А, АКН-0.66 К-Ф24-В.				

USR - United States Standard, Recognized.

CNR - Canadian National Standard, Recognized.

Certificate Number Report Reference Date	UL-US-2245552-0 E520314-20221123 28-Nov-2022
Issued to:	Jiangsu Acrel Electrical Manufacturing. Co., Ltd. No 31, Hongtu Road, Nanzha Street Jiangyin, Jiangsu 214405 China
This is to certify that representative samples of	NMTR2 - Power Circuit and Motor-mounted Apparatus - Component
	See Addendum Page for Product Designation(s).
	Have been evaluated 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:	UL 508, 18th Ed., Issue Date: 2018-03-30, Revision Date: 2021-07-08
Additional Information:	See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Recognized Component Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance 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.

Oebrah Jenning - Corne Deborah Jennings-Conner, VP Regulatory Services

UL LLC

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Certificate Number Report Reference Date UL-US-2245552-0 E520314-20221123 28-Nov-2022

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

Model	Category Description		
АКН-0.66 К-Ф16-М	Current Transformer		
AKH-0.66 K-Ф16-U	Current Transformer		
АКН-0.66 К-Ф24-А	Current Transformer		
АКН-0.66 К-Ф24-В	KH-0.66 K-Ф24-B Current Transformer		
АКН-0.66 К-Ф24-М	Current Transformer		
AKH-0.66 K-Ф24-U	0.66 K-Ф24-U Current Transformer		

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Certificate Number Report Reference Date

UL-CA-2243317-0 E520314-20221123 28-Nov-2022

Issued to: Jiangsu Acrel Electrical Manufacturing. Co., Ltd. No 31, Hongtu Road, Nanzha Street Jiangyin, Jiangsu 214405 China

This is to certify that representative samples of

NMTR8 - Power Circuit and Motor-mounted Apparatus Certified for Canada - Component See Addendum Page for Product Designation(s).

Have been evaluated 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:	CSA C22.2 NO. 14-18, 13th Ed., Issue Date: 2018-03-01
Additional Information:	See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Recognized Component Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance 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.

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Certificate Number Report Reference Date UL-CA-2243317-0 E520314-20221123 28-Nov-2022

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

Model	Category Description		
АКН-0.66 К-Ф16-М	Current Transformer		
AKH-0.66 K-Ф16-U	Current Transformer		
АКН-0.66 К-Ф24-А	Current Transformer		
AKH-0.66 K-Ф24-B	H-0.66 K-Ф24-B Current Transformer		
АКН-0.66 К-Ф24-М	Current Transformer		
AKH-0.66 K-Ф24-U	Ф24-U Current Transformer		

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File E520314 Project 4790551685

November 23, 2022

REPORT

on

COMPONENT - Power Circuit and Motor-mounted Apparatus

JIANGSU ACREL ELECTRICAL MANUFACTURING. CO., LTD. Jiangyin, JIANGSU, China

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		and Report			

DESCRIPTION

PRODUCT COVERED:

USR, CNR - Power Circuit and Motor-mounted Apparatus, Current Transformer, models AKH-0.66 K- Φ 16-M, AKH-0.66 K- Φ 16-U, AKH-0.66 K- Φ 24-M, AKH-0.66 K- Φ 24-U, AKH-0.66 K- Φ 24-A, AKH-0.66 K- Φ 24-B.

GENERAL:

These devices are open type current transformer for use in industrial control applications.

ELECTRICAL RATINGS:

	INPUT		OUTPUT		
MODEL	Primary Voltage (Vac)	Primary nominal current (A)	Nominal output	Surrounding Air Temperature(SAT)(°C)	
АКН-0.66 К-Ф16-М	690	20-120	10-50 mA	70	
AKH-0.66 K-Ф16-U	090	20-120	100-333 mV	70	
АКН-0.66 К-Ф24-М		100-400	20-100 mA		
AKH-0.66 K-Ф24-U		100-400	100-333 mV		
АКН-0.66 К-Ф24-А	690	150-200	5A	60	
AMI-0.00 N-424-A		250-300			
АКН-0.66 К-Ф24-В	150-200 150-200		- 1A		
		250-300			

Pollution Degree - 3

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NOMENCLATURE:

AKH	-	0.66	K	- Φ 16	-	U
I		II	III	IV		V

- I. Series Code: AKH II. Nominal Voltage
 - 0.66: 0.66 KVac
- III. Open current transformer K
- IV. Size Φ16, Φ24
- V. Output Type

U:mV output M:mA output A:5A output B:1A output TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by UL LLC.

USR - Products designated USR have been investigated using US requirements as noted in the Test Record.

CNR - Products designated CNR have been investigated using Canadian requirements as noted in the Test Record.

Conditions of Acceptability - The following items are to be considered when evaluating the power unit in the end-use product:

- The device terminals are not suitable for field wiring. The terminals are to be factory wired only and the suitability of the connection (including spacings between factory connectors) shall be determined for end use application.
- 2. Spacing from the exposed live metal parts to the enclosure walls shall be in accordance with the requirements of the end product.
- Model AKH-0.66 K-Φ16 was tested with minimum 1AWG,690 Vac,105℃ of main input terminal wire, model AKH-0.66 K-Φ24 was tested with minimum 300Kcmil,690 Vac, 105℃ of main input terminal wire.
- 4. The spacing were evaluated based on R/C AVLV2/8 wire used for primary input wire. For other primary input connection, spacing should be re-evaluated and the suitability shall be determined for end use application.

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CONSTRUCTION DETAILS:

The product shall be constructed in accordance with the following description.

Tolerances - Unless specified otherwise, all indicated dimensions are nominal.

Corrosion Protection - All parts are of corrosion resistant material or are painted or plated as corrosion protection.

Spacing - Spacings have been evaluated in accordance with UL 840, Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, 3rd Edition, table 8.1 and 9.1, CSA C22.2 No.14-18, table 35 and 55. Spacing through the system was based on the pollution degree 3 and Material Groups III, OVC III, Uimp 8kV.

Permanence of Marking - Markings may be molded, die-stamped, paintstenciled, stamped, laser engraved or etched in metal or indelibly stamped on aluminum, pressure-sensitive label secured by adhesive (PGDQ2 or PGJI2). The combination of the ink (ribbon) and the label material shall be used per the manufacturer's UL specifications. The printing of the label shall be done using compatible printing equipment.

Markings - The devices shall be plainly marked with:
1. Listee's name, trademark or File no.;
2. Model no.;
3. Electrical ratings that may be provided in the instruction manual or the brochure.

Markings - The following information shall be provided on the product or instruction manual and shipped with the device.

1. Surrounding Air Temperature;

2. Mounting instructions or proper connections for the devices.

All products shall be marked in a visible manner with the following: "TRANSIENT SURGE SUPPRESSION SHALL BE INSTALLED ON THE LINE SIDE OF THIS EQUIPMENT AND SHALL BE RATED 690V (PHASE TO GROUND), 690 V (PHASE TO PHASE), SUITABLE FOR OVERVOLTAGE CATEGORY III, AND SHALL PROVIDE PROTECTION FOR A RATED IMPULSE WITHSTAND VOLTAGE PEAK OF 8 kV" or equivalent.

Summary of Figures and Illustrations - In this report, the following illustrations shall be used as supplementary information where specifically noted.

FIG. or ILL. No.	Description
FIGS. 1~2	AKH-0.66 K-Ф16
FIGS. 3~6	AKH-0.66 K-Ф24
ILL. 1	Specification of AKH-0.66 K-Φ16
ILL. 2	Specification of AKH-0.66 K-Ф24
ILL. 3	Resistance value comparison table

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MODEL AKH-0.66 K-Φ16 - FIG. 1~2

General - Model AKH-0.66 K- Φ 16 shown in the figures construction as below.

- 1. Case R/C (QMFZ2/8), SABIC JAPAN L L C (E207780), type 945(GG) (rated V-0, 130°C, HWI = 3, HAI = 3, CTI = 2, min 1.0 mm), Bobbin measured minimum 1.0 mm thick, meet barrier requirements, refer to ILL.1 for details.
- Windings R/C (OBMW2), MW 79-C, 155°C, one provided, refer to ILL.3 for details.

a. wound on Bobbin, 1000 turns to 4000 turns, for mA output. b. wound on Bobbin, 2000 turns to 4000 turns, for mV output.

- 3. Core Ferrite core, two provided, measured approx.25.8 mm by 16.1 mm by 18.0 mm by 4.43 mm thick.
- 4. Heat shrinkable tube R/C (YDPU2), minimum 600V, minimum 125°C.
- 5. Output wire R/C (AVLV2), rated minimum 22AWG, 300V, 80°C.
- Tape R/C (OANZ2), Type PETH, 130°C, 2 layers, only used for fixing components .
- 7. Diodes Type P6KE6.8CA, max. operation temperature 125°C, used for mA output.
- 8. Resistor Any resistance, used for mV output.
- 9. Spring Steel, Fixed at Bottom, measured approx.7.0 mm OD max by 0.5mm thick.

MODEL AKH-0.66 K-Ф24 - FIG. 3~6

General - Model AKH-0.66 K- $\Phi24$ shown in the figures construction as below.

- 1. Case R/C (QMFZ2/8), SABIC JAPAN L L C (E207780), type 945(GG) (rated V-0, 130°C, HWI = 3, HAI = 3, CTI = 2, min 1.0 mm), Bobbin measured minimum 1.1 mm thick, meet barrier requirements, refer to ILL.2 for details.
- 2. Windings R/C (OBMW2), MW 79-C, 155°C, one provided, refer to ILL.3 for details.

a. wound on Bobbin, 1000 turns to 7500 turns for mA output.
b. wound on Bobbin, 1000 turns to 4000 turns for mV output.
c. wound on Bobbin, 0.75mm&0.9mm, two are intertwined, 30 turns to 60 turns, for 5A output.
d. wound on Bobbin, 0.5mm thickness, 150 turns to 300 turns for 1A output.

- 3. Core Ferrite core or Silicon steel sheet cold rolling, two provided, measured approx. 41.7 mm by 14.5 mm by 26.3 mm,6.5 mm thick.
- 4. Heat shrinkable tube R/C (YDPU2), minimum 600V, minimum 125°C.
- Output wire-1 R/C (AVLV2), rated minimum 22AWG, 300V, 85°C, not applicable for 5A/1A output.
- 6. Tape R/C (OANZ2), Type PETH, 130°C, 2 layers, only used for fixing components, not applicable for 5A/1A output.
- 7. Diodes Type P6KE6.8CA, max. operation temperature 125°C, used for mA output.
- 8. Resistor Any resistance, used for mV output.
- 9. Spring plate Steel, measured approx.24.5mm by 11.5mm by 0.3mm thick.
- 10. Output wire-2 R/C (AVLV2), rated minimum 14AWG, 300Vac, 80° C, used for 5A/1A output.
- 11. Line pressing terminal Optional, Type EVN1508, used for 5A/1A output.

Figure-1 Page-1



Figure-2 Page-1



Figure-3 Page-1



Figure-4 Page-1

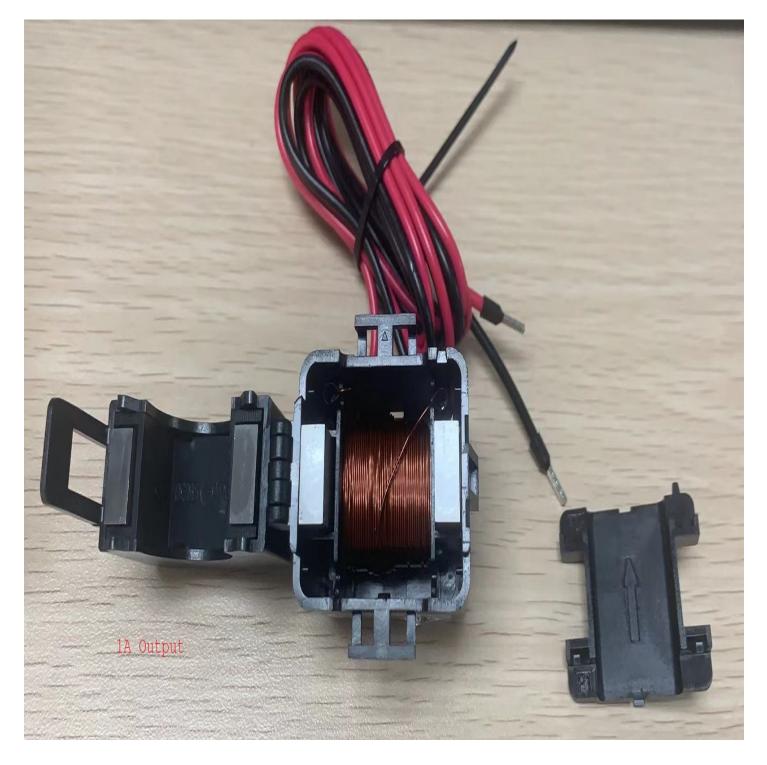


Figure-5 Page-1

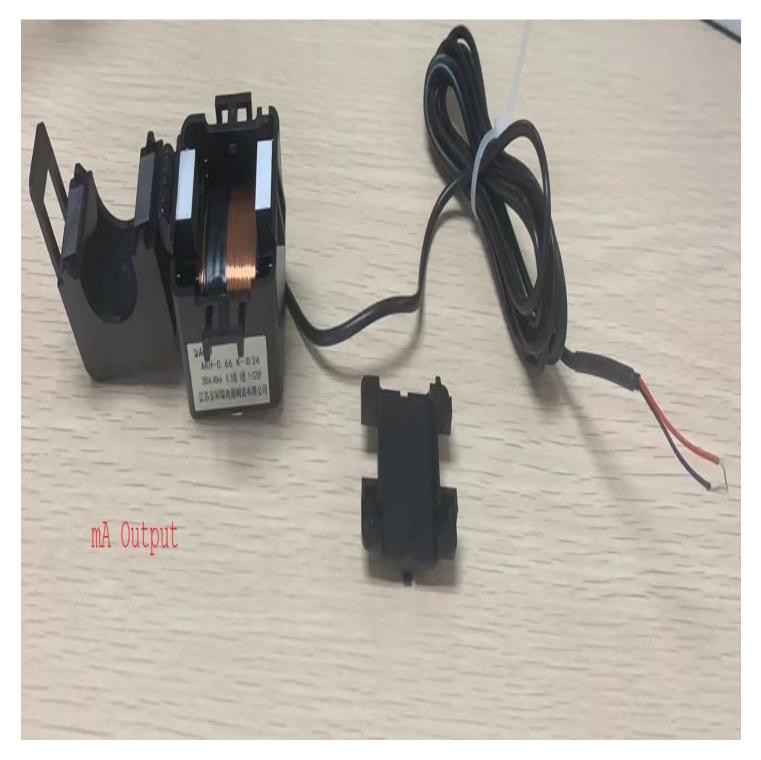


Figure-6 Page-1



The following Page(s) are related to Illustration-1. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

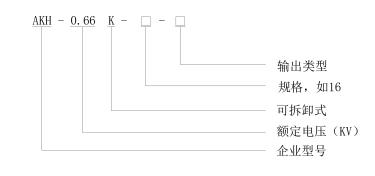


AKH-0. 66/K-Φ16 系列开口电流互感器

1. 产品特点

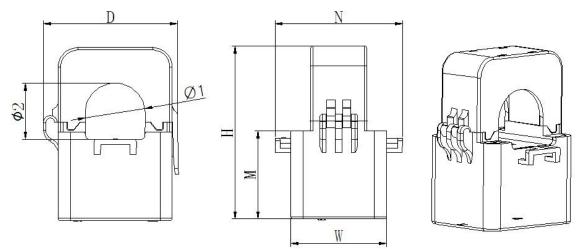
产品外形美观,安装、接线方便,主要用于电力运维及用电改造项目,具有体积小、精度高、带载能力强、安装方便等优点,可与 AMC16 多回路监控仪表配合使用。

2. 型号说明



输出类型: U:mV 输出; M:mA 输出;





尺寸		外形尺寸(mm)					f (mm)	公差(mm)
规格	W	Н	D	М	N	Φ1	Φ2	+1
К-Ф16	31	50	36	27	42	16	17	· ±1

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传 真: 0510-86179835 E-mail: acrelct@email.acrel.cn

4. 规格参数对照表

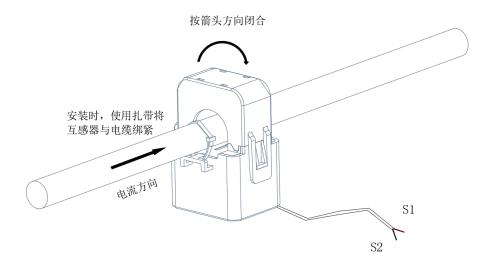


型 号	额定输入	额定输出	准确度等级	穿孔尺寸	耐压
空 ち	初走制八	俞 (龙 刊) 山	0.5级	(mm)	间引 <i>]</i> 王
К-Ф16-М	(20, 120) A	(10-50)mA	10 Ω	<u>ф14</u>	21-11
K-Φ16-U	(20-120)A	(100-333)mV	10 Ω	Φ16	3kV

5. 使用环境

- 额定工作电压 AC0.66kV (等效 AC0.69kV, GB156/T-2017)
- 额定频率 50-60Hz
- 环境温度-30℃~+70℃
- 海拔高度≤3000m
- 工频耐压 3000V/1min 50Hz
- 用于没有雨雪直接侵袭,无严重污染及剧烈震动的场所





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第2页共2页

The following Page(s) are related to Illustration-2. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

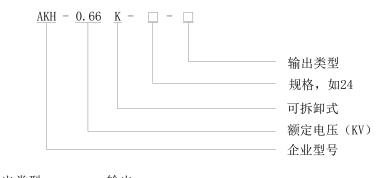


AKH-0. 66/K-Φ24 系列开口电流互感器

1. 产品特点

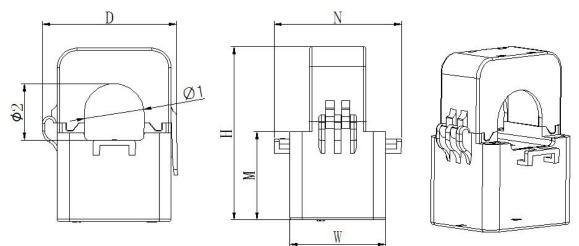
产品外形美观,安装、接线方便,主要用于电力运维及用电改造项目,具有体积小、精度高、带载能力强、安装方便等优点,可与 AMC16 多回路监控仪表配合使用。

2. 型号说明



输出类型: U:mV 输出; M:mA 输出; A:5A 输出; B:1A 输出。

3. 规格尺寸



尺寸		外形尺寸(mm)					f (mm)	公差(mm)
规格	W	Н	D	М	N	Φ1	Φ2	±1
К-Ф24	39	70. 5	55	36	52	24. 5	23	

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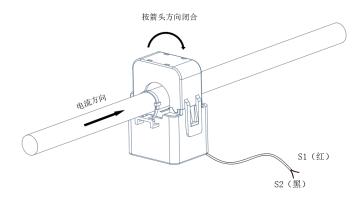


型号	额定输入	额定输出	准确度等级	(VA/Ω)	穿孔尺寸	耐压
至 5	似た刑八	砌た刑山	0.5级	1 级	(mm)	
К-Ф24-М	(100–400) A	(20-100) mA	10			
K-Φ24-U	(100-400) A	(100-333)mV	10			
K-Φ24-A	(150-200)A	5A		1		21.14
Ν [−] Ψ24 [−] Α	(250-300)A	ЭА		1.5	Φ24	3kV
К-Ф24-В	(150-200)A	1 A		1		
Ν Ψ24 ⁻ Β	(250-300)A	1A		1.5		

5. 使用环境

- 额定工作电压 AC0.66kV(等效 AC0.69kV, GB156/T-2017) •
- 额定频率 50-60Hz
- 环境温度-30℃~+60℃ •
- 海拔高度≤3000m •
- 工频耐压 3000V/1min 50Hz •
- 用于没有雨雪直接侵袭,无严重污染及剧烈震动的场所 •

6. 安装方式



注:如上图所示,1A、5A输出为红黑单根线,mV,mA输出为单根双绞线。

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第2页共2页

The following Page(s) are related to Illustration-3. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

			АКН-0.66К-Ф24		
输出类型	型号	输入(A)	输出(A/mA/mV)	线圈阻值(Ω)	功耗(₩)
		150A	1A	1.1	1.1
1A		200A	1A	1.2	1.2
IA		250A	1A	1.6	1.6
		300A	1A	2	2
		150A	5A	0.2	5
5A		200A	5A	0.4	10
JA		250A	5A	0.4	10
		300A	5A	0.4	10
		100A	20mA	437	0.1748
		200A	33.33mA	495	0.54989
		200A	40mA	437	0.6992
mA		200A	66.67mA	170	0.755631
IIII X		300A	40mA	730	1.168
	AKH-0. $66K - \Phi 24$	300A	50mA	495	1.2375
	$11110.001 \Psi 24$	400A	66.67mA	495	2.202201
		400A	100mA	222.5	2.225
		100A	100mV	80	0.000125
		100A	200mV	80	0.0005
		100A	333mV	168	0.00066005
		200A	100mV	271	0.0000369
		200A	200mV	80	0.0005
mV		200A	333mV	80	0.00138611
111 V		300A	100mV	131	0.00007634
		300A	200mV	131	0.00030534
		300A	333mV	131	0.00084648
		400A	100mV	222.5	0.000044944
		400A	200mV	222.5	0.000179775
		400A	333mV	222.5	0.000498

	AKH-0. 66K-Φ16							
输出类型	型号	输入(A)	输出(A/mA/mV)	线圈阻值(Ω)	功耗(W)			
		20A	10mA	109	0.0109			
		30A	20mA	93	0.0372			
		40A	40mA	36.5	0.0584			
		50A	10mA	700	0.07			
mA		80A	20mA	471	0.1884			
		100A	20mA	700	0.28			
		100A	50mA	109	0.4239			
		120A	30mA	471	0.3984			
		120A	40mA	249	0.2725			
	1	20A	200mV	109	0.00036697			
		20A	333mV	109	0.00101733			
		30A	200mV	251	0.00015936			
		30A	333mV	251	0.00044179			
	АКН-0. 66К-Ф16	40A	200mV	471	0.00008493			
		40A	333mV	471	0.00023543			
		50A	100mV	108.5	0.00009217			
		50A	200mV	201	0.00019048			
mV		60A	100mV	109	0.00009174			
ШV		60A	333mV	109	0.00101733			
		80A	333mV	203.6	0.00054464			
		90A	200mV	251	0.00015936			
		100A	100mV	109	0.000091743			
		100A	200mV	109	0.00036697			
		100A	333mV	251	0.000441789			
		120A	100mV	249	0.00004016			
		120A	200mV	249	0.00016064			
		120A	333mV	249	0.00044534			

File E520314

TEST RECORD NO. 1

Representative production samples indicated below and constructed as described herein, were submitted by the manufacturer for examination and test.

Power Circuit and Motor-mounted Apparatus, Current Transformer, AKH-0.66 К-Ф16-М, АКН-0.66 К-Ф16-U, АКН-0.66 К-Ф24-М, АКН-0.66 К-Ф24-U, АКН-0.66 К-Ф24-А, АКН-0.66 К-Ф24-В

Electric Ratings of the products indicated as below.

	INPUT		OUTPUT		
MODEL	Primary Voltage (Vac)	Primary nominal current (A)	Nominal output	Surrounding Air Temperature(SAT)(°C)	
АКН-0.66 К-Ф16-М	690	20-120	10-50 mA	70	
AKH-0.66 K-Ф16-U	090	20-120	100-333 mV	70	
АКН-0.66 К-Ф24-М		100-400	20-100 mA		
AKH-0.66 K-Ф24-U		100-400	100-333 mV		
АКН-0.66 K-Ф24-А	690	150-200	5A	60	
		250-300			
АКН-0.66 К-Ф24-В		150-200	1A		
		250-300			

Pollution Degree - 3

Test performed on models AKH-0.66 K- Φ 16-M, AKH-0.66 K- Φ 24-M and AKH-0.66 К-Ф24-А.

GENERAL:

The following tests were conducted:

TEST	STANDARD	CODE	CLAUSE			
Temperature Test	UL 508 C22.2 No. 14-18	S	45 6.2			
Dielectric Voltage-Withstand Test Dielectric Strength	UL 508 C22.2 No. 14-18	S	51 6.8			
S = Same Test OS = Testing requirements come from one standard only.						

Test results relate only to the items tested.

Test Record Summary:

The results of this investigation, including construction review and testing, indicate that the components evaluated comply with the applicable requirements in the standards, UL 508 Industrial Control Equipment, 18th Edition updated to 2021/07/08, CAN/CSA C22.2 No. 14-18 Industrial Control Equipment, 13th Edition updated to 2018/03, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

CONCLUSION

Samples of the components covered by this Report have been found to comply with the requirements covering the category and the components are found to comply with UL's applicable requirements. The description and test result in this Report are only applicable to the sample(s) investigated by UL and does not signify the product(s) described as being covered under UL's Follow-Up Service Program. When covered under UL's Follow-Up Service Program, the manufacturer is authorized to use the Recognized Marking on such products which comply with UL's Follow-Up Service Procedure and any other applicable requirements of UL LLC. The Recognized Component Mark of UL LLC on the product, or the Recognized Marking symbol on the product and the Recognized Component Mark on the smallest unit container in which the product is packaged, is the only method to identify products investigated by UL to published requirements and manufactured under UL's Recognition and Follow-Up Service.

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