

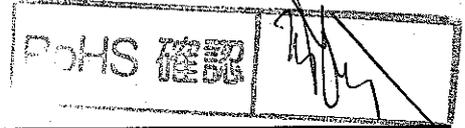


승인원

한독전자(주)
인천시 부평구 청천동 440-4
남광센트렉스 412호

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E-mail : bob@handouk.co.kr
Web : www.handouk.co.kr

From : 한독전자(주)
Date : 2010년 11월 26일
Subject : 승인원 제출의건



1. 귀사의 일약 번창하심을 기원합니다.
2. 당사의 RELAY 제품 "HL1-2C-12H"의 귀사제품 적용을 위한 승인을 의뢰하오니 검토하여 주시기 바랍니다

3. 제 품 : POWER RELAY "HL1-2C-12H"

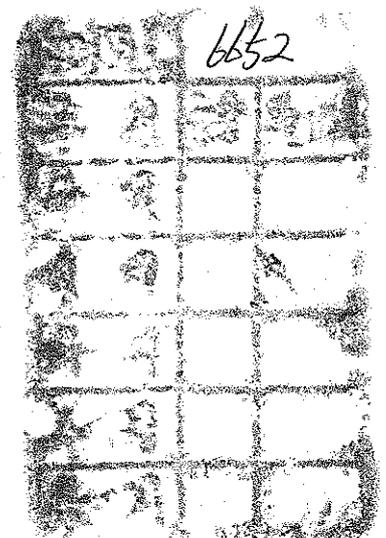
4. 변경 이력

아남 품번	CSL4A018ZE
적용 모델	AVR 165

No.	부서	Mark	내	용

5. 첨부

- DATA SHEETS : 1부
- UL Certificate : 1부
- TUV Certificate : 1부



이書類를承認합니다
西紀 2010年 11月 30日
亞南電子(株)附設 필터터 연구소
 필터터 다어 연구실

研究員	主任	任次	局首	席
김민준				
최동석				

- 이 상 -



HL1-2C-12H

► FEATURES

- 2 Form C configuration.
- 5A contact rating.
- Sealed types.



Size (L x W x H)
29 x 12.7 x 20mm

► CONTACT DATA

Contact Form	1C (10A)	1CH (16A)	1CT (16A)	2C (5A)	2CM (8A)
Contact Ratings	10A 240VAC 30VDC	16A 240VAC 30VDC	16A 240VAC 30VDC	5A 240VAC 30VDC	8A 240VAC 30VDC
Contact Material	Ag alloy				
Max. Switching Voltage	240VAC / 30VDC				
Max. Switching Current	12A	20A	20A	8A	8A
Max. Switching Power	2,400VA 300W	3,840VA 480W	3,840VA 480W	1,200VA 150W	1,920VA 240W
Contact Resistance	100mΩ at 6VDC 1A				
Life Expectancy	Electrical	100,000 Operations (at 30 ops a minute)			
	Mechanical	10,000,000 Operations			

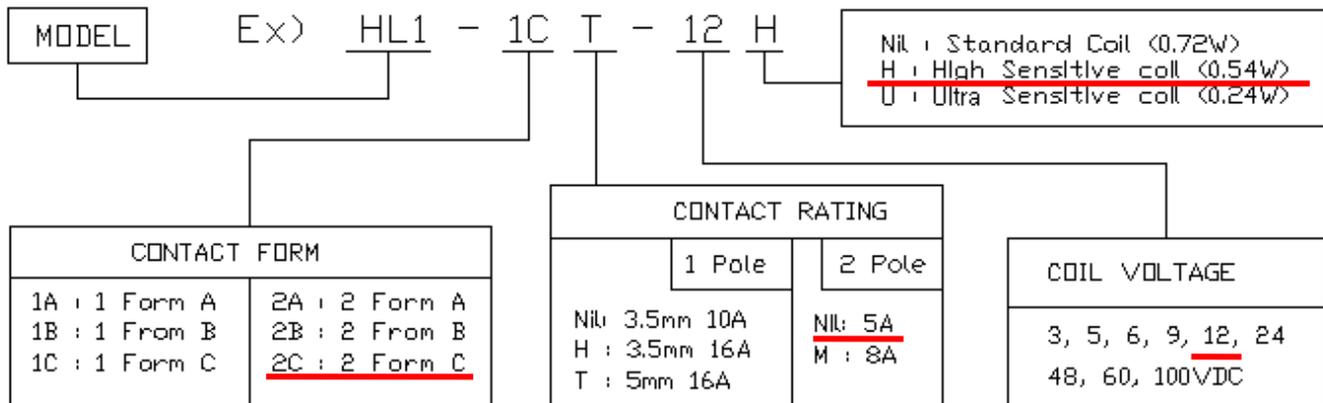
► OPERATION CONDITION

Insulation Resistance	100MΩ min (at 500VDC)	
Dielectric Strangth	Between open Contacts	1,000VAC (For one minute)
	Between coil & Contacts	5,000VAC (For one minute)
Operate time	20ms	
Release Time	10ms	
Shock resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration resistance	10~55Hz Double amplitude	
Max. switching frequency	Electrical	1,800 operations / hr
	Mechanical	18,000 operations / hr
Humidity	40~85%	
Temperature Range	-30 ~ 70°C (-40~158° F)	
Weight	Approx 14g	
Safety Standard	UL	E197546
	TUV	R50157251, R50157266, R50157267

► COIL PARAMETER

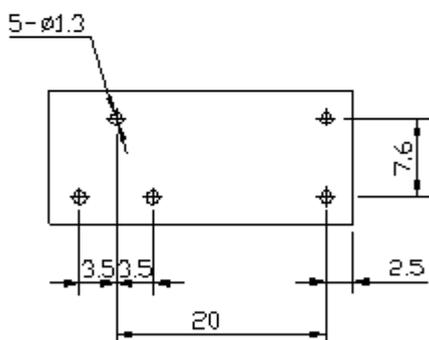
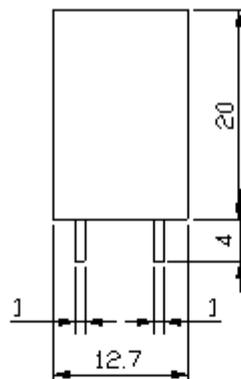
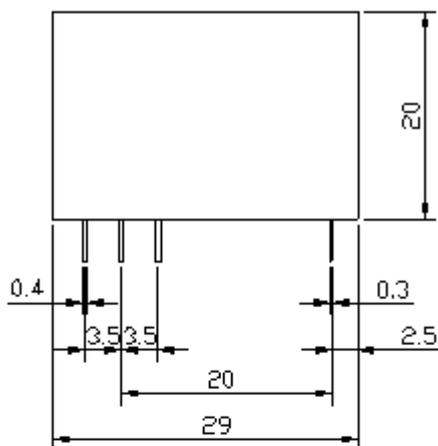
Nominal Voltage (VDC)	Coil Resistance at 20 C (Ω)			Max Operate Voltage	Min. Release Voltage	Max. Applicable Voltage
	3~24V : $\pm 10\%$		48V~: $\pm 15\%$			
	0.24W	0.54W	0.72W			
3	38	17	13	2.4	0.15	3.9
5	104	46	35	4	0.25	6.5
6	150	67	50	4.8	0.3	7.8
9	337	150	110	7.2	0.45	11.7
12	600	270	200	9.6	0.6	15.6
24	2,400	1050	800	19.2	1.2	31.2
48	9,600	4,250 $\pm 15\%$	3,200	38.4	2.4	62.4
60		6,800 $\pm 15\%$		48	3.0	78
100		18,860 $\pm 15\%$		80	5.0	130

► ORDERING INFORMATION

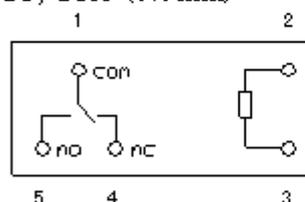


► DIMENSIONS (UNIT: MM)

HL1-1C

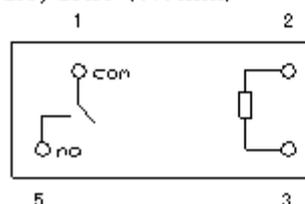


1C, 1CH (3.5mm)



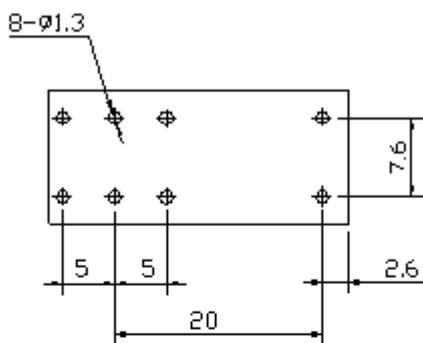
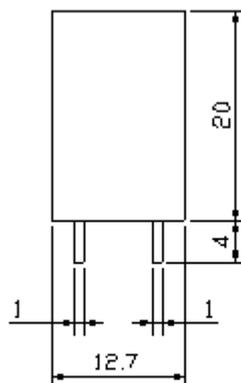
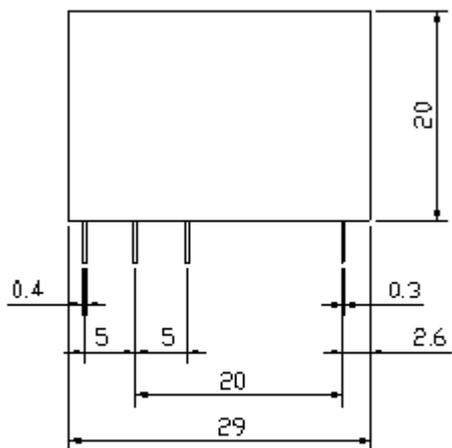
Form C

1A, 1AH (3.5mm)

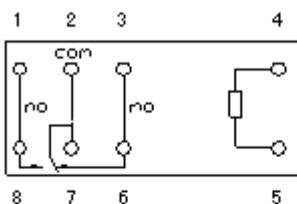


Form A

HL1-1CT

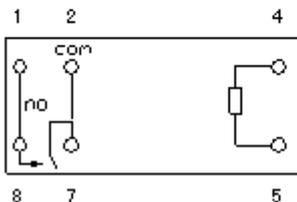


1CT (5mm)



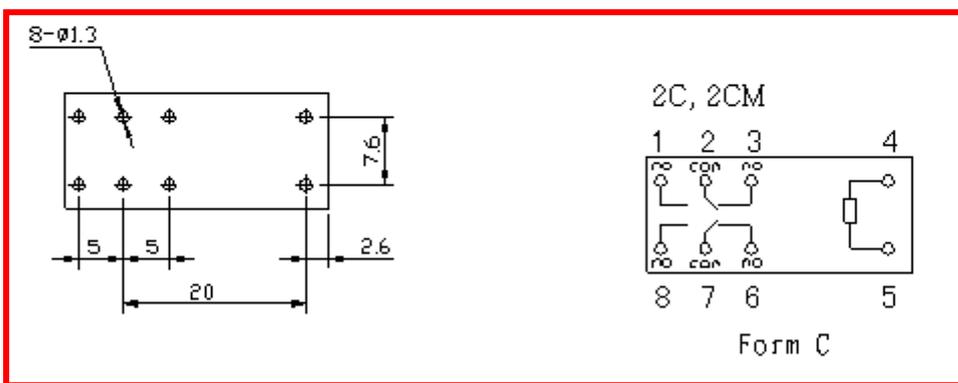
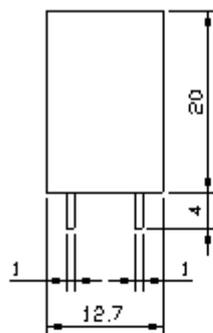
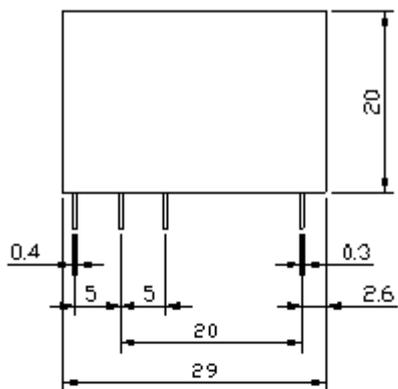
Form C

1AT (5mm)

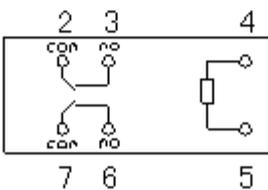


Form A

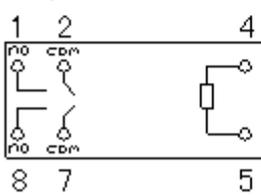
HL1-2C



2B, 2BM



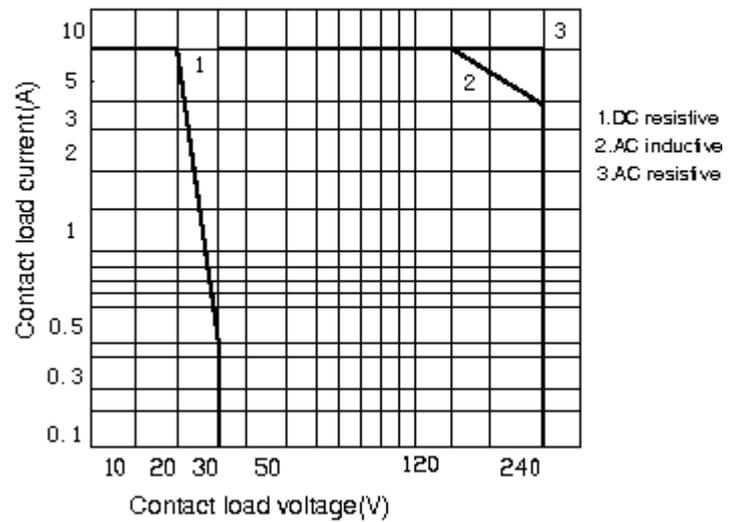
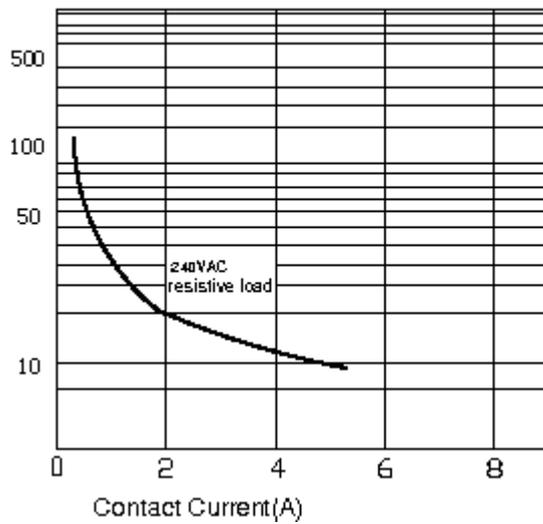
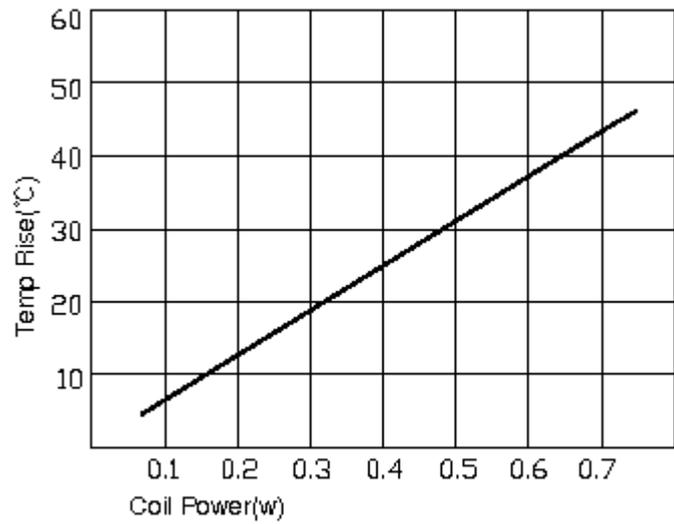
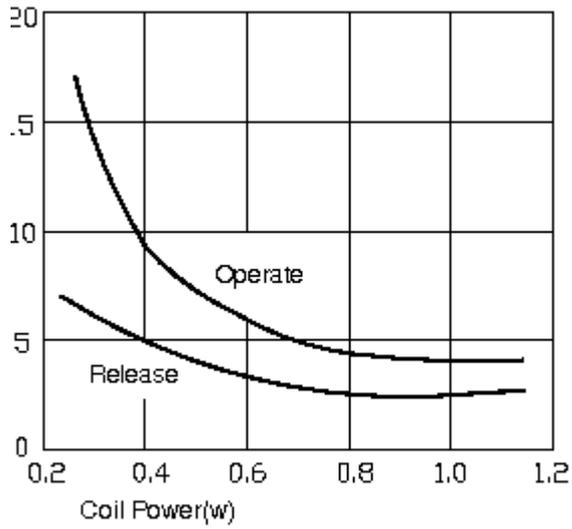
2A, 2AM



Form A

► USEFUL CURVE

Timing



DESCRIPTION

PRODUCT COVERED:

USR, CNR Component - Industrial Control Switches, Model HL1
followed by 1C, 1CH, 1CT or 2C, 2CM, followed by 3-48.
may be followed by H.

GENERAL:

These devices are open type relays intended for industrial applications.

RATINGS:

Coil voltages: 0-48 V dc

Contact ratings:

1pole H1l - 10 A at 240 V ac/30 V dc resistive
1pole H - 16 A at 240 V ac/30 V dc resistive
1pole T - 16 A at 240 V ac/30 V dc resistive
2pole H1l - 5 A at 240 V ac/30 V dc resistive
2pole M - 8 A at 240 V ac/30 V dc resistive

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

CNR - Indicates Investigated to Canadian National Standard(s) C22.2
No. 14-M91.

Note: CNR = Canadian National Standards - Recognized
USR = United States Standards - Recognized

NOMENCLATURE I:

$$\frac{HL1}{I} \quad - \quad \frac{1C}{II} \quad \frac{T}{III} \quad - \quad \frac{12}{IV} \quad \frac{H}{V}$$

I. Series Designation

II. Contact Arrangement

1A - 1 Form A
1C - 1 Form C
2A - 2 Form A
2C - 2 Form C

III. Contact rating

1pole H11 - 10 A at 240 V ac/30 V dc
1pole H - 16 A at 240 V ac/30 V dc
1pole T - 16 A at 240 V ac/30 V dc
2pole H11 - 5 A at 240 V ac/30 V dc
2pole H - 8 A at 240 V ac/30 V dc

IV. Coil Voltage

3-48 V dc

V. Coil Power

H11 - 0.72 W
H - 0.54 W

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - For use only in complete equipment where the acceptability of the combination has been determined by Underwriters Laboratories Inc.

These components have been judged on the basis of required spacings in the Standard for Industrial Control Equipment, UL 508, Par. 34.1.

Conditions of Acceptability -

1. Open type devices are to be mounted in enclosures having adequate strength and thickness, with acceptable spacings being provided.
2. These devices are suitable for factory wiring only.

Zertifikat

Certificate



Zertifikat Nr. *Certificate No.*
R 50056430

Blatt *Page*
0001

Ihr Zeichen *Client Reference*
W.J.M.

Unser Zeichen *Our Reference*
01-SZ- 15001786 009

Ausstellungsdatum
03.02.2005

Date of Issue
(day/month/year)

Genehmigungsinhaber *License Holder*
HANDOUK ELECTRONICS CO., LTD.
HyungJin Plaza 606
Ganseok-dong 313-3, Namdong-gu
Incheon 405-807
Rep. of Korea

Fertigungsstätte *Manufacturing Plant*
Hauptzertifikatsinhaber *Original license holder*
HANDOUK ELECTRONICS CO., LTD.

Prüfzeichen *Test Mark*



Geprüft nach *Tested acc. to*
EN 61810-1:1998
EN 60255-23:1996

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

Relais (Relay)

Type Designation	: HL1-1x-yzu (HD)	2
	x = A or C	1
	y = 3; 5; 6; 9; 12; 18; 24 or 48	1
	z = Blank; H or N	1
	u = Blank or (2)	1
Rated Coil Voltage	: DC 3; 5; 6; 9; 12; 18; 24 or 48V	
Rated Coil Power	: 0,24W; 0,54W or 0,72W	
Ambient Temperature	: -40°C to +85°C	
Contact Rating	: AC 240V; 10A; cos phi=1 DC 30V; 10A; L/R=0ms	
Electrical Endurance	: 100,000 Operating Cycles	
Mechanical Endurance	: 10,000,000 Operating Cycles	



6

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde.
Das Produkt entspricht den n.g. Anforderungen, die Herstellung wird überwacht.
This certificate is based on our Testing and Certification Regulation. The product
fulfills above-mentioned requirements, the production is subject to surveillance.

Zertifizierungsstelle

TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln

Tel.:(+49/221)8 06 - 13 71 Fax:(+49/221)8 06 - 39 35 e-mail: Altbo116@de.tuv.com

Klaus Bröck
Dipl.-Ing. K. Bodenstern

Zertifikat

Certificate



Zertifikat Nr. *Certificate No.*
R 50056430

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0002

<i>Ihr Zeichen Client Reference</i>	<i>Unser Zeichen Our Reference</i>	<i>Ausstellungsdatum Date of Issue (day/month/year)</i>
W.J.M.	01-SZ- 15001786 009	03.02.2005

Genehmigungsinhaber License Holder
HANDOUK ELECTRONICS CO., LTD.
HyungJin Plaza 506
Ganseok-dong 313-3, Namdong-gu
Incheon 405-807
Rep. of Korea

Fertigungsstätte Manufacturing Plant
Hauptzertifikatsinhaber *Original license holder*
HANDOUK ELECTRONICS CO., LTD.

Prüfzeichen *Test Mark*

Geprüft nach *Tested acc. to*
EN 61810-1:1998
EN 60255-23:1996



Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

Relais (Relay)

as page 0001

Addition

Type Designation	: HLI-1xT-yzu (HD)	1
	x = A or C	1
	y = 3; 5; 6; 9; 12; 18; 24 or 48	1
	z = Blank; H or N	1
	u = Blank or (2)	1

Contact Rating : AC 240V; 16A; cos phi=1
DC 30V; 16A; L/R=0ms

5



*Das Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde.
Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht.
This certificate is based on our Testing and Certification Regulation. The product
fulfills above-mentioned-requirements, the production is subject to surveillance.*

Zertifizierungsstelle

TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln

Tel.:(+49/221)8 06 - 13 71 Fax:(+49/221)8 06 - 39 35 e-mail: Althoff@de.tuv.com

Klaus Brä
Dipl.-Ing. K. Bodenstern

Zertifikat

Certificate



Zertifikat Nr. Certificate No.
R 50056430

Blatt Page
0003

Ihr Zeichen Client Reference
W.J.M.

Unser Zeichen Our Reference
01-SZ- 15001786 009

Ausstellungsdatum
03.02.2005

Date of Issue
(day/mo/yr)

Genehmigungsinhaber License Holder
HANDOUK ELECTRONICS CO., LTD.
HyungJin Plaza 606
Ganseok-dong 313-3, Namdong-gu
Incheon 405-807
Rep. of Korea

Fertigungsstätte Manufacturing Plant
Hauptzertifikatsinhaber Original license holder
HANDOUK ELECTRONICS CO., LTD.

Prüfzeichen Test Mark



Geprüft nach Tested acc. to
EN 61810-1:1998
EN 60255-23:1996

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

Relais (Relay)

as page 0001

Addition

Type Designation	: HL1-2x-yzu (HD)	1
	x = A or C	1
	y = 3; 5; 6; 9; 12; 18; 24 or 48	1
	z = Blank; H or N	1
	u = Blank or (2)	1

Contact Rating : AC 240V; 5A; cos phi=1
DC 30V; 5A; L/R=0ms

5



Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde.
Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht.
This certificate is based on our Testing and Certification Regulation. The product
fulfills above-mentioned-requirements, the production is subject to surveillance.

Zertifizierungsstelle

TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln

Tel.:(+49/221)8 06 - 13 71 Fax:(+49/221)8 06 - 39 35 e-mail: Akhoff@de.tuv.com

Klaus Bode

Dipl.-Ing. K. Bodenstern

Hazardous Substance Component Analysis Sheet

(有害物質 成分 分析表)

A'ssy Code	-
A'ssy Name	-
Data (YYYY-MM-DD)	

Vender Code(業體code)	42102390
Vender Name(業體名)	HANDOUK ELECTRONICS CO LTD
Department (所屬部署)	Sales
Contact Person (擔當者名)	Bob Pae / Mr

NO	Part's Information (部品)					Substance Group 構成品		Substance Unit 原材質		Hazardous Substance Contain(PPM) 有害物質含有量						Pb Free Solder Information Pb Free Solder 對應		
	P/L No 品番	Part Name 品名	Part Disclption 規格	Weight 重量(g)	Revision 改定日字	Name 品名	Weight 重量(g)	Name (品名)	Weight 重量(g)	Pb	Cd	Hg	CR+6	PBB	PBDE	Thermal Resistance 耐熱性	Coating (鍍金)	
																	BASE	LEAD
1		RELAY	HL1-2C-12H	14g		HL1-2C-12H	14g	HL1-2C-12H	14g	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.			
4																		

Green Procurement Supplier Evaluation List

v1.0

To be filled in by supplier					
Date of evaluation	2010.11.26	Supplier code		Head evaluator	
Company	HANDOUK ELECTRONICS CO., LTD			Tel	+82-32-363-3800
Address	Rm 412, Cheongcheon-dong 440-4, Bupyeong-gu, Incheon 403-858, Korea			Fax	+82-32-363-3805
Delivered product(s)	HL1-2C-12H			Email	sales@handouk.co.kr

Auth	Conf	Mgr

Comprehensive evaluation score		Comprehensive evaluation	
--------------------------------	--	--------------------------	--

Note: The overall evaluation (score) is graded as follows. A: 71 or greater (max 88) / B: 46 – 70 / C: 21 – 45 / D: 20 or less (automatically tabulated)

1. Certification of Environmental Management System

Certification Status * Have you been certified by a third-party institution for ISO 14001 or the equivalent?	Evaluation	Remarks
a) Certified for ISO 14001	d	
Date of Certification Certifying Authority Certification Number		
b) Certified for (9001:2000)	a	
Date of Certification Certifying Authority Certification Number		
China Quality Approval Agency		
c) Acquiring certification for (ISO 14001)	d	
Scheduled date of Inspection Certifying Authority		
2005. 10 DNV		
d) No certification planned	a	
Plan to acquire certification in the future (Yes / No)		

Fill in the evaluation score in the box for item 1 according to the following criteria:

Evaluation score: a: 10 / b: 5 / c: 2 / d: 0

2. Environmental Conservation Activities

Requirements of D&M Guideline	Evaluation	Remarks
Corporate Creed/Policy	Do you have a corporate creed or policy relating to environmental conservation?	
	3	
	Does your creed or policy pledge to continually improve and prevent pollution?	
	3	
Does your creed or policy clearly state that you will comply with legal regulations concerning the environment?		3
Is your creed or policy documented and made known to all employees, and is it available to persons outside the company?		3
Organization/Plan	Do you have an organization/executive manager for environmental management?	
	3	
Do you have an action plan with environmental conservation goals and targets?		3
Operational Management (Framework)	Do you have a framework in place to create concrete improvement plans in response to legal regulations and customer requests?	
	3	
	Is there a framework that provides environmental education to all employees?	
	3	
Is there a framework in place to prevent accidents and extreme or unforeseen events from increasing environmental impact?		3
Is there a framework in place for internal environmental audits?		3
Environmental Aspects (Impact Assessment)	Do you have standards for evaluating the following causes of environmental impact, and do you have a framework for reflecting the results of your evaluations in efforts to reduce environmental impact?	
	(1) Air pollution	
	3	
	(2) Water pollution	
	3	
	(3) Noise/vibration	
	3	
(4) Waste treatment		
3		
(5) Chemicals causing environmental impact contained in delivered products		
3		
(6) Electricity, gas, fuel, and other forms of energy		
3		

Fill in the evaluation score in the box for item 2 according to the following criteria:

Evaluation criteria: 3 = Adequate / 1 = Partial / 0 = None / - = Not Applicable

3. Reducing the Environmental Impact of Materials and Finished Goods

Requirements of D&M Guideline	Evaluation	Remarks
Compliance with Laws and Ordinances	Are you acting in accordance with the WEEE & RoHS directives?	
	3	
	Are you acting in accordance with Proposition 65?	
0		
Are you acting in accordance with the Car NOx/PM Law?		0
Control of content of specified chemical substances (Prohibited substances)	Do products or their packing materials contain substances whose use is prohibited by legal regulations or ordinances?	
	1	
	Are legal regulations and customer requests extended to in-house regulations? Are they revised with appropriate frequency?	
1	Use PVC for Tube	
If products or their packing materials contain specified chemical substances, do they comply with the D&M Green Purchasing Guideline?		3
(Reduction Plan)	Do you have a plan for the elimination or reduction of substances for elimination/reduction?	
3		
Resource/energy conservation	Are your products designed to conserve resources and energy, e.g. via compact/lightweight design, long lifetime, and use of fewer materials?	
3		
Recyclability	Do your designs take reduction in resource consumption, enabling of long-term use, reduction of waste, and ease of disassembly into account, for instance via the three Rs (reduce, reuse, and recycle)?	
3		
Level of environmental awareness of packaging materials	As above, in the case of packaging materials/parts do you work to reduce resource use, recycle, reduce size/weight, and reduce the content of chemicals which impact the environment?	
3		

Fill in the evaluation score in the box for item 3 according to the following criteria:

Evaluation criteria: 3 = Adequate / 1 = Partial / 0 = None / - = Not Applicable

Warranty Card about Harmful Substance

Attention:

1. Our corporation presents to warrant environment-friendly property of our product in response of international restriction concerning environment harmful substance.
2. Our corporation will thoroughly observe "Green Color Purchase Management Regulation" and "Harmful Substance Management Rule" suggested by your corporation and manage harmful substance.
3. Our corporation warrant that information about environment harmful substance (harmful substance list, analysis results for containing of prohibited substance) presented by our corporation with regard to all products/Parts/Raw materials/Packing materials supplied to your corporation is accurate information.
4. Our corporation warrants responsible for any damage or loss occurred where dispute or lawsuit, etc will occur between your corporation and the third party due to non-observance of your environment standards or inconsistency or error of environment harmful substance provided by our corporation.

Warranty period: 2010.10.18 ~ DEC 31, 2011

Warranty period is 1 year. However, such period will be considered as automatical unless both corporations suggest separate intent expression before the expiry

NOV. 18, 2010

Address: Rm.412, Cheongcheon-Dong 440-4, Bupyeong-Gu, Incheon 403-858, Korea
Corporation's Name: HANDOUK ELECTRONICS CO., LTD

Representative: Bob Pae

(Seal)