



Lloyd's  
Register

## Type Approval Certificate Extension

*This is to certify* that Certificate No. 11/10076 for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

<b>PRODUCER</b>	LSIS Co., Ltd.
<b>PLACE OF PRODUCTION</b>	95, Baekbong-ro, Heungdeok-gu, Chengju-si, Chengcheongbuk-do Republic of Korea
<b>DESCRIPTION</b>	Control Relay
<b>TYPE</b>	Metasol MR Series Control Relay MR-4, MR-6 and MR-8
<b>APPLICATION</b>	Marine, offshore and industrial application for use in environmental categories EVN3 as defined in LR Type Approval System Test Specification No.1-2015 where the Test Specification is satisfactory for the intended operation.
<b>STANDARD</b>	IEC60947-1(2007) IEC60947-5-1(2003, A1:2009)

<b>Certificate No.</b>	16/40042(E1)
<b>Issue Date</b>	05 August 2016
<b>Expiry Date</b>	04 August 2021
<b>Sheet</b>	1 of 3



Busan Technical Support Office  
Lloyd's Register Asia

LR031.1.2015.12

G.N Park  
Busan Technical Support Office  
Lloyd's Register Asia

*Lloyd's Register Asia  
119, Daegyo-ro, Jung-gu, Busan*

Lloyd's Register Asia  
Is a subsidiary of Lloyd's Register Group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



**RATINGS**

4, 6 or 8 poles units  
 Conventional free air thermal current I<sub>th</sub>=16A  
 Rated insulation voltage, U<sub>i</sub>=690V  
 Rated operation voltage, U<sub>e</sub>=600V  
 Rated Impulse Withstand Voltage, U<sub>imp</sub> = 6kV

Type	Utilisation Category	AC Voltage Rating (V)					
		Rated Operational Current (A)					
		120V	240V	380V	480V	500V	600V
MR-4	AC-15	6	3	1.9	1.5	1.4	1.2
MR-6 (MR-4+UA-2)	AC-15	6	3	1.9	1.5	1.4	1.2
MR-8 (MR-4+UA-4)	AC-15	6	3	1.9	1.5	1.4	1.2

Type	Utilisation Category	DC Voltage Rating (V)				
		Rated Operational Current (A)				
		125V	250V	400V	500V	600V
MR-4	DC-13	1.1	0.55	0.31	0.27	0.2
MR-6 (MR-4+UA-2)	MR-4	1.1	0.55	0.31	0.27	0.2
	UA-2	0.55	0.27	0.15	0.13	0.1
MR-8 (MR-4+UA-4)	MR-4	1.1	0.55	0.31	0.27	0.2
	UA-4	0.55	0.27	0.15	0.13	0.1

**Certificate No.** 16/40042(E1)  
**Issue Date** 05 August 2016  
**Expiry Date** 04 August 2021  
**Sheet** 2 of 3



Lloyd's Register

Busan Technical Support Office  
**Lloyd's Register Asia**

LR031.1.2015.12

G.N Park  
 Busan Technical Support Office  
 Lloyd's Register Asia

*Lloyd's Register Asia*  
 119, Daegyo-ro, Jung-gu, Busan

Lloyd's Register Asia  
 Is a subsidiary of Lloyd's Register Group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



**OTHER CONDITION**

The system or device incorporating these relays shall be subject to the electromagnetic compatibility tests specified for the zone on which it is intended to operate

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amend during the validity of this certificates, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

(In case of applications other than Marine) The application of this Type-Approval Certificate will be limited to the relevant scope of the Specified Standards and acceptance thereof by the local authorities.

*"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Asia of any modification or changes to the equipment in order to obtain a valid certificate."*

*The Design Appraisal Document No. 16/40042(E1) and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

All other details remain as the previous Certificate No. 11/10076 to which this extension should be attached.

<b>Certificate No.</b>	16/40042(E1)
<b>Issue Date</b>	05 August 2016
<b>Expiry Date</b>	04 August 2021
<b>Sheet</b>	3 of 3



G.N Park  
Busan Technical Support Office  
Lloyd's Register Asia

*Lloyd's Register Asia  
119, Daegyo-ro, Jung-gu, Busan*

Lloyd's Register Asia  
Is a subsidiary of Lloyd's Register Group



## Lloyd's Register Asia

Busan Technical Support Office

10<sup>th</sup> Floor, CJ Korea Express Bldg. 119, Daegyo-ro, Jung-gu,  
busan, republic of Korea

Telephone +82 51 640 50000 Fax +82 51 637 4114

Email [btso@lr.org](mailto:btso@lr.org)

Page	1 of 1
Document number	16/40042(E1)
Issue number	0

### DESIGN APPRAISAL DOCUMENT

Date 05 August 2016	Quote this reference on all future communications BTS/ETS/E162134
------------------------	--

## LLOYD'S REGISTER TYPE APPROVAL SYSTEM, 2014.

Issued to: **LSIS CO., LTD.**

for: **METASOL MR SERIES CONTROL RELAYS**  
**TYPE APPROVAL CERTIFICATE No. 16/40042(E1)**

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System, 2014 and this Design Appraisal Document forms part of the Certificate.

### APPROVAL DOCUMENTATION

Request for Marine Services	From 2502TA	08 March 2016
Production Quality Assessment Form		07 April 2016
Declaration of Identity		08 March 2016

### TEST REPORTS

Test Report by PT&T	R410-2675	18 April 2011
Test Report by PT&T	R410-2676	18 April 2011
Test Report by PT&T	R410-2677	18 April 2011
UL CB TEST CERTIFICATE	DK-20732	11 November 2010
UL Test Report IEC 60947-5-1	10CA17816-20100528	25 October 2010
Visual inspection & Performance test		14 April 2016
Test Report by PT&T	R416-0520	07 April 2016
Test Report by PT&T	R416-0521	07 April 2016
Test Report by PT&T	R416-0522	07 April 2016

### Supplementary Type Approval Terms and Conditions

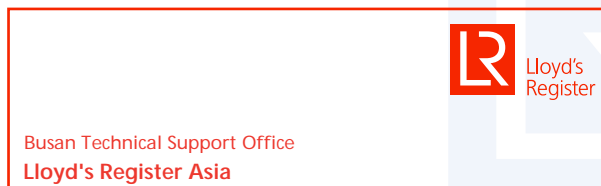
*Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.*

*Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.*

*Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.*

*Lloyd's Register Asia reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.*

Gun-Nam Park  
Specialist  
Electrotechnical Systems  
Busan Technical Support Office  
Lloyd's Register Marine & Offshore  
Email: [btso@lr.org](mailto:btso@lr.org)



LR031.1.2015.12

**Part 2**  
**Subject: Contactors (ENV Tested)**  
**Product: Control Relay**

Producer/Licence No.	Type	Ratings					Category Additional Tests	Remarks	Cert. No.	
		Standard	Utilisation Category	Operational Voltage Ue	Operational Current Ie Amperes	Thermal Current Ith Amperes				
<b>LSIS Co., Ltd.</b> <b>95, Baekbong-ro,</b> <b>Heungdeok-gu,</b> <b>Chengju-si,</b> <b>Chengcheongbuk-do,</b> <b>Korea, Republic of.</b>	Magnetic Contactors MR Series:  4, 6 or 8 poles units	IEC60047-1(2007) IEC60947-5-1(2003, A1:2009)	AC15	120V	6	16	ENV3 (2015) IEC 60947-5-1: 2003 (3 <sup>rd</sup> Edition) + A1: 2009	Expiries: 04 August 2021  Rated insulation voltage, Ui=690V Rated operation voltage, Ue=600V Rated Impulse Withstand Voltage, Uimp = 6kV	16/40042(E1)	
	MR-4			240V	3					
				380V	1.9					
				480V	1.5					
				500V	1.4					
				600V	1.2					
	MR-6 (MR-4 + UA-2)			120V	6					16
				240V	3					
				380V	1.9					
	480V	1.5								
	500V	1.4								
	600V	1.2								
MR-8 (MR-4+UA-4)	120V	6	16							
	240V	3								
	380V	1.9								
	480V	1.5								
	500V	1.4								
	600V	1.2								

**Part 2**  
**Subject: Contactors (ENV Tested)**  
**Product: Control Relay**

Producer/Licence No.	Type	Ratings					Category Additional Tests	Remarks	Cert. No.
		Standard	Utilisation Category	Operational Voltage Ue	Operational Current Ie Amperes	Thermal Current Ith Amperes			
	MR-4		DC13	125V 250V 400V 500V 600V	1.1 0.55 0.31 0.27 0.2	16			
	MR-6 (MR-4+UA-2)		DC13	125V 250V 400V 500V 600V	MR-4 UA-2 1.1 0.55 0.55 0.27 0.31 0.15 0.27 0.13 0.2 0.1	16			
	MR-8 (MR-4+UA-4)		DC13	125V 250V 400V 500V 600V	MR-4 UA-4 1.1 0.55 0.55 0.27 0.31 0.15 0.27 0.13 0.2 0.1	16			