

# TYPE APPROVAL CERTIFICATE

**This is to certify:**

**That the Contactor Relay**

with type designation(s)  
**MR-4/6/8**

Issued to

**LSIS Co., Ltd.**  
**Cheongju-si Chungcheongbuk-do, Republic of Korea**

is found to comply with  
**Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards**

**Application :**

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

This Certificate is valid until **2019-06-30**.

Issued at **Busan** on **2015-07-03**

DNV GL local station: **Seoul**

for **DNV GL**

Approval Engineer: **Byoung So Lee**

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**Baeg Soon Choi**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

## Product description

Contactory relay with the following data:

4,6 or 8 poles units  
 16A continuous Ith  
 Rated insulation voltage Ui = 690V  
 Uimp = 8kV

### A. Utilization category AC-15:

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

### B. Utilization category DC-13:

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

## Application/Limitation

For installation inside switchboards/enclosures onboard ships and mobile offshore unit.

Job Id: **262.1-011734-2**  
Certificate No: **TAE000002K**

## **Type Approval documentation**

Technical info :  
LG Industrial Systems Co., Ltd. "PRODUCT EXPLANATION" issued 2011-01-31.

Type test reports :  
UL INTERNATIONAL DEMKO A/S reports no. 10CA17816-20100528 dated 2010-10-25

Environmental test reports PT&T test report no. R410-2675, R410-2676 and R410-2677 dated 2011-04-18

Type approval periodical assessment report issued 2015-05-18

## **Tests carried out**

Type tests according to IEC 60947-5-1. Environmental tests including dry heat, damp heat, vibration, high voltage, cold, inclination and insulation resistance test

## **Marking of product**

LSIS – Type designation - Rating

## **Periodical assessment**

The scope of the retention/renewal survey is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Survey to be performed at least every second year.

END OF CERTIFICATE