



TYPE APPROVAL CERTIFICATE
No. ELE028310PU/001

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

| | |
|-----------------------------|---|
| <i>Description</i> | Contactor and thermal overload relay |
| <i>Type</i> | MC-6a/9a/12a/18a/9b/12b/18b/22b/32a/40a/50a/65a/75a/85a/100a |
| <i>Applicant</i> | LSIS CO., LTD. 1 SONGJEONG-DONG, HEUNGDEOK-GU 361-720 CHEONGJU-CITY, CHUNGBUK KOREA, REPUBLIC OF |
| <i>Manufacturer</i> | LSIS CO., LTD. |
| <i>Place of manufacture</i> | 1 SONGJEONG-DONG, HEUNGDEOK-GU 361-720 CHEONGJU-CITY, CHUNGBUK KOREA, REPUBLIC OF |
| <i>Reference standards</i> | IEC 60947-4-1 |

Issued in **BUSAN** on **October 30, 2010**. *This Certificate is valid until* **October 30, 2015**



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TYPE APPROVAL CERTIFICATE

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Enclosure – Page 1 of 3

MC-6a/9a/12a/18a/9b/12b/18b/22b/32a/40a/50a/65a/75a/85a/100a

Product Description

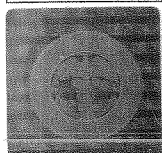
- Contactor METASOL type applicable to the marine environment with following rating :


- Frame Size 18AF

| Type | Rated Freq. [Hz] | Rated Insulation Voltage | Ambient Temp. [C] | Rated Thermal Current Ith [A] | Rated Operational Voltage Ue[V] | Rated operational current Ie[A] | Utilization Category |
|--------|------------------|--------------------------|-------------------|-------------------------------|--------------------------------------|---------------------------------|----------------------|
| MC-6a | 50/60 | 690 | 45 | 25 | 200/240 380/440 500/550 690 | 9 7 6 4 | AC-3 |
| MC-9a | 50/60 | 690 | 45 | 25 | 200/240 380/440 500/550 690 | 11 9 7 5 | AC-3 |
| MC-12a | 50/60 | 690 | 45 | 25 | 200/240 380/440 500/550 690 | 13 12 12 9 | AC-3 |
| MC-18a | 50/60 | 690 | 45 | 32 | 200/240 380/440 500/550 690 | 18 18 13 9 | AC-3 |

- Frame Size 22AF

| Type | Rated Freq. [Hz] | Rated Insulation Voltage | Ambient Temp. [C] | Rated Thermal Current Ith [A] | Rated Operational Voltage Ue[V] | Rated operational current Ie[A] | Utilization Category |
|--------|------------------|--------------------------|-------------------|-------------------------------|--------------------------------------|---------------------------------|----------------------|
| MC-9b | 50/60 | 690 | 45 | 25 | 200/240 380/440 500/550 690 | 11 9 7 6 | AC-3 |
| MC-12b | 50/60 | 690 | 45 | 25 | 200/240 380/440 500/550 690 | 13 12 12 9 | AC-3 |
| MC-18b | 50/60 | 690 | 45 | 40 | 200/240 380/440 500/550 690 | 18 18 13 9 | AC-3 |
| MC-22b | 50/60 | 690 | 45 | 40 | 200/240 380/440 500/550 690 | 22 22 20 18 | AC-3 |



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TYPE APPROVAL CERTIFICATE

No. ELE028310PU/001

Enclosure – Page 2 of 3

- Frame Size 40AF

| Type | Rated Freq. [Hz] | Rated Insulation Voltage | Ambient Temp. [C] | Rated Thermal Current Ith [A] | Rated Operational Voltage Ue[V] | Rated operational current Ie[A] | Utilization Category |
|--------|------------------|--------------------------|-------------------|-------------------------------|--------------------------------------|---------------------------------|----------------------|
| MC-32a | 50/60 | 1000 | 45 | 50 | 200/240 380/440 500/550 690 | 32 32 28 20 | AC-3 |
| MC-40a | 50/60 | 1000 | 45 | 60 | 200/240 380/440 500/550 690 | 40 40 32 23 | AC-3 |

- Frame Size 65AF

| Type | Rated Freq. [Hz] | Rated Insulation Voltage | Ambient Temp. [C] | Rated Thermal Current Ith [A] | Rated Operational Voltage Ue[V] | Rated operational current Ie[A] | Utilization Category |
|--------|------------------|--------------------------|-------------------|-------------------------------|--------------------------------------|---------------------------------|----------------------|
| MC-50a | 50/60 | 1000 | 45 | 70 | 200/240 380/440 500/550 690 | 55 50 43 28 | AC-3 |
| MC-65a | 50/60 | 1000 | 45 | 100 | 200/240 380/440 500/550 690 | 65 65 60 35 | AC-3 |

- Frame Size 100AF

| Type | Rated Freq. [Hz] | Rated Insulation Voltage | Ambient Temp. [C] | Rated Thermal Current Ith [A] | Rated Operational Voltage Ue[V] | Rated operational current Ie[A] | Utilization Category |
|---------|------------------|--------------------------|-------------------|-------------------------------|--------------------------------------|---------------------------------|----------------------|
| MC-75a | 50/60 | 1000 | 45 | 110 | 200/240 380/440 500/550 690 | 75 75 64 42 | AC-3 |
| MC-85a | 50/60 | 1000 | 45 | 135 | 200/240 380/440 500/550 690 | 85 85 75 45 | AC-3 |
| MC-100a | 50/60 | 1000 | 45 | 160 | 200/240 380/440 500/550 690 | 105 105 85 65 | AC-3 |



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TYPE APPROVAL CERTIFICATE

No. ELE028310PU/001

Enclosure – Page 3 of 3

Reference Documents

- LSIS PT&T Test Report No. R410-1282~1286 dated 25/08/2010
KEMA Test Certificate No. NL-9848/M2 dated 17/12/2008, KEMA Test Report No. NL-13534 dated 05/11/2007
KEMA Test Certificate No. NL-14734 dated 26/08/2008, Underwriters Lab. Ref. No. DK-15348 dated 13/03/2009

Note/Remark

- The product is subject to the compliance with RINA Rules and other Standards mentioned on certificate.
- Type Approval certifies that a representative sample of the product has been found to meet the applicable design criteria.
- Any modification or change shall not be valid until approval is granted by RINA as a result of due assessment.

BUSAN October 30, 2010



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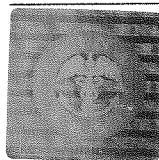


TYPE APPROVAL CERTIFICATE
No. ELE028310PU/002

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

| | |
|-----------------------------|---|
| <i>Description</i> | Contactor and thermal overload relay |
| <i>Type</i> | MC-130a/150a/185a/225a/265a/330a/400a/500a/630a/800a |
| <i>Applicant</i> | LSIS CO., LTD. 1 SONGJEONG-DONG, HEUNGDEOK-GU 361-720 CHEONGJU-CITY, CHUNGBUK KOREA, REPUBLIC OF |
| <i>Manufacturer</i> | LSIS CO., LTD. |
| <i>Place of manufacture</i> | 1 SONGJEONG-DONG, HEUNGDEOK-GU 361-720 CHEONGJU-CITY, CHUNGBUK KOREA, REPUBLIC OF |
| <i>Reference standards</i> | IEC 60947-4-1 |

Issued in **BUSAN** *on* **October 30, 2010.** *This Certificate is valid until* **October 30, 2015**



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TYPE APPROVAL CERTIFICATE

No. ELE028310PU/002

Enclosure – Page 1 of 2

MC-130a/150a/185a/225a/265a/330a/400a/500a/630a/800a

Product Description

- Contactor METASOL type applicable to the marine environment with following rating :

- Frame Size 150AF

| Type | Rated Freq. [Hz] | Rated Insulation Voltage | Ambient Temp. [C] | Rated Thermal Current Ith [A] | Rated Operational Voltage Ue[V] | Rated operational current Ie[A] | Utilization Category |
|---------|------------------|--------------------------|-------------------|-------------------------------|--------------------------------------|---------------------------------|----------------------|
| MC-130a | 50/60 | 1000 | 45 | 160 | 200/240 380/440 500/550 690 | 130 130 90 60 | AC-3 |
| MC-150a | 50/60 | 1000 | 45 | 210 | 200/240 380/440 500/550 690 | 150 150 100 60 | AC-3 |

- Frame Size 225AF

| Type | Rated Freq. [Hz] | Rated Insulation Voltage | Ambient Temp. [C] | Rated Thermal Current Ith [A] | Rated Operational Voltage Ue[V] | Rated operational current Ie[A] | Utilization Category |
|---------|------------------|--------------------------|-------------------|-------------------------------|--------------------------------------|---------------------------------|----------------------|
| MC-185a | 50/60 | 1000 | 45 | 230 | 200/240 380/440 500/550 690 | 185 185 180 120 | AC-3 |
| MC-225a | 50/60 | 1000 | 45 | 275 | 200/240 380/440 500/550 690 | 225 225 200 150 | AC-3 |

- Frame Size 400AF

| Type | Rated Freq. [Hz] | Rated Insulation Voltage | Ambient Temp. [C] | Rated Thermal Current Ith [A] | Rated Operational Voltage Ue[V] | Rated operational current Ie[A] | Utilization Category |
|---------|------------------|--------------------------|-------------------|-------------------------------|--------------------------------------|---------------------------------|----------------------|
| MC-265a | 50/60 | 1000 | 45 | 300 | 200/240 380/440 500/550 690 | 265 265 225 185 | AC-3 |
| MC-330a | 50/60 | 1000 | 45 | 350 | 200/240 380/440 500/550 690 | 330 330 280 225 | AC-3 |
| MC-400a | 50/60 | 1000 | 45 | 450 | 200/240 380/440 500/550 690 | 400 400 350 300 | AC-3 |



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TYPE APPROVAL CERTIFICATE

No. ELE028310PU/002

Enclosure – Page 2 of 2

- Frame Size 800AF

| Type | Rated Freq. [Hz] | Rated Insulation Voltage | Ambient Temp. [C] | Rated Thermal Current Ith [A] | Rated Operational Voltage Ue[V] | Rated operational current Ie[A] | Utilization Category |
|---------|------------------|--------------------------|-------------------|-------------------------------|--------------------------------------|---------------------------------|----------------------|
| MC-500a | 50/60 | 1000 | 45 | 580 | 200/240 380/440 500/550 690 | 500 500 400 380 | AC-3 |
| MC-630a | 50/60 | 1000 | 45 | 660 | 200/240 380/440 500/550 690 | 630 630 500 420 | AC-3 |
| MC-800a | 50/60 | 1000 | 45 | 900 | 200/240 380/440 500/550 690 | 800 800 720 630 | AC-3 |

Reference Documents

- LSIS PT&T Test Report No. R410-1287~1290 dated 25/08/2010
KEMA Test Certificate No. NL-16667 dated 20/08/2009, KEMA Test Report No. 2123631.50/51/52 dated 19/08/2009

Note/Remark

- The product is subject to the compliance with RINA Rules and other Standards mentioned on certificate.
- Type Approval certifies that a representative sample of the product has been found to meet the applicable design criteria.
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BUSAN October 30, 2010




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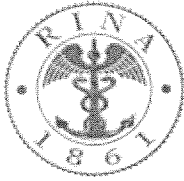
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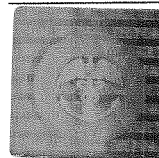
TYPE APPROVAL CERTIFICATE

No. ELE028310PU/003

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

| | |
|-----------------------------|---|
| <i>Description</i> | Contactor and thermal overload relay |
| <i>Type</i> | MT-12/32/63/95/150/225/400/800 |
| <i>Applicant</i> | LSIS CO., LTD. 1 SONGJEONG-DONG, HEUNGDEOK-GU 361-720 CHEONGJU-CITY, CHUNGBUK KOREA, REPUBLIC OF |
| <i>Manufacturer</i> | LSIS CO., LTD. |
| <i>Place of manufacture</i> | 1 SONGJEONG-DONG, HEUNGDEOK-GU 361-720 CHEONGJU-CITY, CHUNGBUK KOREA, REPUBLIC OF |
| <i>Reference standards</i> | IEC 60947-4-1 |

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No. ELE028310PU/003

Enclosure – Page 1 of 1

MT-12/32/63/95/150/225/400/800

Product Description

- Thermal Overload Relay METASOL type applicable to the marine environment with following rating :

| Type | Rated Insulation Voltage Ui [V] | Setting Range [A] | Reference Document |
|--------|------------------------------------|-------------------|---|
| MT-12 | 690 | 0.1 ~ 18 | LSIS PT&T Test Report No. R410-1291 dated 24/08/2010 |
| MT-32 | 690 | 0.1 ~ 40 | LSIS PT&T Test Report No. R410-1292 dated 24/08/2010 |
| MT-63 | 690 | 4 ~ 65 | LSIS PT&T Test Report No. R410-1293 dated 24/08/2010 |
| MT-95 | 690 | 7 ~ 100 | LSIS PT&T Test Report No. R410-1294 dated 24/08/2010 |
| MT-150 | 690 | 34 ~ 150 | LSIS PT&T Test Report No. R410-1295 dated 24/08/2010 |
| MT-225 | 690 | 65 ~ 240 | LSIS PT&T Test Report No. R410-1296 dated 24/08/2010 |
| MT-400 | 690 | 85 ~ 400 | LSIS PT&T Test Report No. R410-1297 dated 24/08/2010 |
| MT-800 | 690 | 200 ~ 800 | LSIS PT&T Test Report No. R410-1298 dated 24/08/2010 |

- Marking: MT-XX / □
XX : Frame Size
□ : 2H-Non-differential(2 heater),3H-Non-differential(3 heater),3K-Differential,3D-Class 20
- Number of poles : 3
- Method of operation : Thermal (Bi-metal)

Reference Documents

- LSIS PT&T Test Report No. R410-1291~1298 dated 25/08/2010
KEMA Test Certificate No. 2123631.53/54/55/56 dated 19/08/2009

Note/Remark

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