

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Electric Bus Bar**with type designation(s)
LDA

Issued to

**Siemens AG Energy Management
Köln Nordrhein-Westfalen, Germany**is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Bus bar trunking system for installation outside of switchboards/enclosures onboard ships and offshore units.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Hamburg** on **2018-02-14**for **DNV GL**This Certificate is valid until **2023-02-13**.DNV GL local station: **Essen**Approval Engineer: **Carsten Hunsalz**

**Arne Schaarmann
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

Type: LDA

| Type name | Type description | Current (A) | Rated short-time withstand current 1 sec (kA) | Rated short-time withstand current 0,1 sec (kA) | Rated short-circuit peak (kA) |
|-----------|------------------|----------------|--|--|----------------------------------|
| LDA 142 | 4-pole PEN= L | 855 | 40 | 55 | 121 |
| LDA 242 | 4-pole PEN= L | 950 | 55 | 70 | 154 |
| LDA 342 | 4-pole PEN= L | 1140 | 58 | 80 | 176 |
| LDA 441 | 4-pole PEN= ½ L | 1425 | 80 | 110 | 242 |
| LDA 442 | 4-pole PEN= L | 1425 | 80 | 110 | 242 |
| LDA 541 | 4-pole PEN= ½ L | 1710 | 110 | 125 | 275 |
| LDA 542 | 4-pole PEN= L | 1710 | 110 | 125 | 275 |
| LDA 641 | 4-pole PEN= ½ L | 1900 | 116 | 130 | 286 |
| LDA 642 | 4-pole PEN= L | 1900 | 116 | 130 | 286 |
| LDA 741 | 4-pole PEN= ½ L | 2280 | 116 | 130 | 286 |
| LDA 742 | 4-pole PEN= L | 2280 | 116 | 130 | 286 |
| LDA 841 | 4-pole PEN= ½ L | 2565 | 116 | 130 | 286 |
| LDA 842 | 4-pole PEN= L | 2565 | 116 | 130 | 286 |
| LDA 162 | 5-pole N= L | 855 | 40 | 55 | 121 |
| LDA 262 | 5-pole N= L | 950 | 55 | 70 | 154 |
| LDA 362 | 5-pole N= L | 1140 | 58 | 80 | 176 |
| LDA 461 | 5-pole N= ½ L | 1425 | 80 | 110 | 242 |
| LDA 462 | 5-pole N= L | 1425 | 80 | 110 | 242 |
| LDA 561 | 5-pole N= ½ L | 1710 | 110 | 125 | 275 |
| LDA 562 | 5-pole N= L | 1710 | 110 | 125 | 275 |
| LDA 661 | 5-pole N= ½ L | 1900 | 116 | 130 | 286 |
| LDA 662 | 5-pole N= L | 1900 | 116 | 130 | 286 |
| LDA 761 | 5-pole N= ½ L | 2280 | 116 | 130 | 286 |
| LDA 762 | 5-pole N= L | 2280 | 116 | 130 | 286 |
| LDA 861 | 5-pole N= ½ L | 2565 | 116 | 130 | 286 |
| LDA 862 | 5-pole N= L | 2565 | 116 | 130 | 286 |

- Bus-bar material: Sea atmosphere resistant Aluminium.
- Current ratings given are for horizontal edgewise and vertical application. Nominal ambient temperature of max. 45 °C.
- Frequency (Hz): 50 or 60
- Rated voltage (V): 1000
- Degree of protection (IP): 54
- Min. clearance distances: 8 mm, min creepage distances: 16 mm
- Flame retardant after IEC 60332-1

Application/Limitation

Installation/fixing to the structure to be done in accordance with the manufacturer's instructions. The distances of the supports for the busbar system must not exceed 1200 mm for LDA8 and 1600 mm for LDA1 to 7.

Not to be used in hazardous zones and on open deck and in wet spaces such as cargo holds and below floor plates in engine rooms.

Job Id: **262.1-000195-11**
Certificate No: **TAE00002H9**

Type Approval documentation

Planning Manual: Busbar trunking system SIVACON 8PS – Planning with SIVACON 8PS (document number: A5E01541101)

Product information: Product information no. PI0056.01 dated 2010-12-02

Test reports: WTD71-0012/2004 issued 2004-01-21, WT71-213-058/95 issued Oct. 95, ID-TPW-952341, issued Aug. 95, 0103145, issued Sep. 01.

Declaration: EC-Declaration of conformity no. EC 0010.03de issued 2016-04-11

Tests carried out

Type tests according to IEC 60439-1 & 2 / 61439-1/6 and 60092-302. Vibration, Dry heat, Humidity, Low temperature, High voltage.

Marking of product

Siemens – LDAXXX – Main data.

Periodical assessment

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

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to 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.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE