DNV·GL

Certificate No:
TAE00001UG

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Data transmission cables and systems

with type designation(s)
UNITRONIC DeviceNet Thick Halogen Free UL/CSA (CMG)

Issued to
U.I. Lapp GmbH
Stuttgart, Germany

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Issued at **Hamburg** on **2017-09-07**
This Certificate is valid until **2022-09-06**.
DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Holger Jansen**

Joannis Papanuskas
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.

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Product description

Halogen free, flame retardant UNITRONIC BUS DeviceNet Thick Cable with polyethylene insulation and FRNC outer sheath

Rated voltage:	24 V for power supply
Temperature range:	-25 to 80 °C
Conductor:	Tinned flexible stranded copper conductors
Core/Insulation:	Central element (drain wire) without insulation 1 Pair O2YS(ST): Foamed Polyethylene (PE) with skin 1 Pair LI2Y(ST): Polyethylene (PE)
Individual screen:	Aluminium coated foil
Common screen:	Tinned copper wire braid
Outer sheath:	Halogen free, highly flame retardant compound FRNC

Number of cores and cross-sectional areas:

Central element:	Drain wire: 0,86 mm²
Pairs:	1 Pair for data transfer, 18 AWG, 1,0 mm² 1 Pair for power supply, 15 AWG, 1,5 mm²

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Place of Production

Leoni Special Cables GmbH, Eschstr.1, 26169 Friesoythe

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
EN 50290-2-23	2014-09	Communication Cable – Common design rules and construction – Polyethylene insulation for multi-pair cables used in access telecommunication networks: Outdoor cables	
EN 50290-2-27	2008-03	Communication Cables – Part 2-27: Common design rules and construction – Halogen free flame retardant thermoplastic sheathing compounds	
IEC 60754-2	2011-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	
IEC 60332-1-2	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable –Procedure for 1 kW pre-mixed flame	

Standard	Release	General description	Limitation
IEC 61034-1/2	2013-07	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	
UL 1685/SCA FT4	2015-07	Standard for Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables	
IEC 60332-3-24	2009-02	Tests on electric and optical fibre cables under fire condition – Part 3-24: Test for vertical flame spread of vertically-mounted bunches wires or cables – Category C	
IEC 60332-3-25	2009-02	Tests on electric and optical fibre cables under fire condition – Part 3-25: Test for vertical flame spread of vertically-mounted bunches wires or cables – Category D	

Marking of product

LAPP KABEL STUTTGART UNITRONIC BUS DeviceNet THICK FRNC

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