

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Data transmission cables and systems**with type designation(s)
EPD 109318Q Twisted pair BUS cable

Issued to

**TE Connectivity Ltd.
Swindon, United Kingdom**

is found to comply with

**Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske
Veritas' Offshore Standards
IEC 60332-3-22 (2009-02)
IEC 60754-1/2 (2011-11)****Application :****Bus cable for Diesel Engines.
Flame retardant Cat. A. Halogen Free. Low smoke.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed
by DNV GL.**Issued at **Høvik** on **2017-06-28**This Certificate is valid until **2017-12-31**.DNV GL local station: **London**for **DNV GL**Approval Engineer: **Ivar Bull**

**Andreas Kristoffersen
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

Types:

EPD121137A Twisted pair BUS cable 1 x 2 x 0,50 mm² + E - 120 OHM - 300 V
EPD121138A Twisted pair BUS cable 1 x 2 x 0,50 mm² + DW - 120 OHM - 300 V

Conductors: Tinned stranded copper
Core insulation: Foamed crosslinked polyolefin.
Overall Screen Tinned copper wire braid
Outer sheath: SHF2

Table 107-Fieldbus Cable specifications (IEC 61158-2 ed. 1)

Cable parameter	Type A	Type B	EPD 121137A	EPD 121138A
Impedance	135 to 165 Ω (f = 3 to 20 MHz)	100 to 130 Ω (f > 100kHz)	120+10 Ohms Met. C @1Mhz	120+10 Ohms Met. C @1Mhz
Capacity	< 30 pF/m	< 60 pF/m	37 pF/m @1Mhz	37 pF/m @1Mhz
Resistance	< 110 Ω /km	not specified	40.1 Ω /km	40.1 Ω /km
Conductor cross-sectional area	$\geq 0,34$ mm ²	$\geq 0,22$ mm ²	1x2x0.50+ 1x0.50	1x2x0.50+ 1x0.50 DW
Colour of sheath non-IS	Violet	Not specified	Black	Black
Colour of inner cable conductor A (RxD/TxD-N)	Green	Not specified	W+B+G	W+B
Colour inner cable conductor B (RxD/TxD-P)	Red	Not specified		
Additional data				
Attenuation:				
Velocity (calculated):			77% nominal	77% nominal

Application/Limitation

The requirement of SOLAS Chapter II-1 Part D Reg.45, 5.2 to limit Fire Propagation along Bunches of Cables or Wires are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Type tests according to: IEC 60332-3-22, IEC 60754-1/2 and IEC 61034-1/2.

Job Id: **262.1-015897-4**
Certificate No: **TAE00001ZA**

Marking of product

TE Connectivity - CANBUS - 1x2x0.50+1x0.50 - Batch+Date Code - PAAF607945

TE Connectivity - CANBUS - 1x2x0.50+DW - Batch+Date Code - PAAF607954

Certificate retention survey

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