



SeaTex® 10



Description and application

SeaTex®10 is a low loss, halogen free flexible communication coax cable especially designed to use on ships and offshore platforms, indoor and outdoor, in wet and dry location. Jacket made of SHF2 material ensures high resistance to oils, UV and weathering and long service life in tough environmental conditions. Additionally its flexibility and small bending radius allows the installation in limited spaces what all together makes it the ideal solution for marine applications.

Design

- Inner conductor: Stranded copper wire 7 X 1.0 (10 AWG) Ø 2,85 mm (0,112 in dia)
- Insulation of foamed Polyethylene (PE) with skin Ø 7,20 mm (0,283 in dia)
- Copper foil overlapped, applied longitudinally
- Shield braiding of bare copper wires Ø 7,90 mm (0,311 in dia)
- Coverage about 75%

Jacket

- Special thermoplastic copolymer (FRNC) BK Ø (10,2 ±0,2) mm (0,402 ±0,008 in dia)

Electrical data at 20°C

- Conductor resistance ≤ 3,5 Ohm/km
- Insulation resistance ≥ 10 GOhm*km
- Characteristic impedance (50±2) Ohm
- Capacitance (1 kHz) 78 nF/km
- Screening attenuation 1 GHz (DIN EN 50289-1-6 / triaxial method) ≥ 90 dB
- Relative velocity of propagation 85 %
- Test voltage (wire/screen rms 50Hz 1 min) 1000 V

| Frequency (MHz) | 10 | 100 | 500 | 1000 | 2000 | 2400 | 3000 | 4000 | 5000 | 6000 | 8000 |
|--|---------------|-------------|---------------|----------------|----------------|----------------|----------------|----------------|-----------------|---------------|-----------------|
| Attenuation typ. (dB/100m) (dB/100ft) | 1,2 (0,37) | 4 (1,22) | 9,6 (2,93) | 14,2 (4,33) | 21,2 (6,46) | 23,6 (7,19) | 26,7 (8,14) | 31,1 (9,48) | 35,2 (10,73) | 39 (11,89) | 46,4 (14,14) |
| Mean. Power (W) at 40°C | 3960 | 1210 | 510 | 350 | 230 | 210 | 180 | 150 | 130 | 120 | 100 |

Mechanical and thermal characteristics

- Conductor/Screen material acc. to DIN EN 13602 Cu-ETP-R...
- Screen material acc. to DIN EN 13602 Cu-ETP-A...
- Insulating material acc. to DIN EN 50290-2-23 (VDE 0819), table L/MD (HD 624.3) (2Y)
- Jacket material acc. to IEC 60092-360 (IEC 60092-359) SHF2
- Flame retardant acc. to IEC 60332-1-2 and IEC 60332-3-22 (Cat. A)

Other characteristics

- RoHS compliant (Directive 2011/65/EC)
- Low Smoke, Fire retardant, Zero Halogen
- Corrosivity of fumes acc. to IEC 60754-2
- Smoke-density acc. to IEC 61034
- UV-resistant
- Oil resistant acc. to EN60811-2-1 (24 hours/100°C)
- Permissible temperature range
 - Transport and fixed installation: -55°C (-67°F) up to 85°C (185°F)
 - Installation and flexible use: -40°C (-40°F) up to 85°C (185°F)

Min. bending radius allowed: repeated 8X Ø, single 4X Ø

Weight about: 135 kg/km (90,5 lb/1000ft)



TYPE APPROVAL CERTIFICATE

This is to certify:

That the Data transmission cables and systems

with type designation(s)
SeaTex 10, SeaTex 15

Issued to

SSB-Electronic GmbH
Lippstadt Nordrhein-Westfalen, 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.

This Certificate is valid until **2021-11-30**.

Issued at **Hamburg** on **2016-12-01**

DNV GL local station: **Essen**

Approval Engineer: **Carsten Hunsalz**

for **DNV GL**

Duy Nam Le
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

Halogen free, SHF 2 sheathed radio frequency coaxial cable.

| | |
|--------------------|---|
| Type: | SeaTex 10 and SeaTex 15 |
| Temperature range: | -40 to 85 °C Installation and flexible use -55 to 85 °C Transport and fixed installation |
| Inner conductor: | Stranded copper wire 7x1.0 SeaTex 10 7x1.5 SeaTex 15 |
| Insulation: | Foamed Polyethylene (PE) with skin |
| Braid: | Copper foil + bare copper wires 75% coverage |
| Sheath: | SHF 2 |

| Electrical Characteristics | Capacitance (1 kHz) nF/km | Impedance Ω | Screen attenuation 1GHz dB |
|----------------------------|------------------------------|-----------------------|-------------------------------|
| SeaTex 10 | 78 | 50 +- 2 | >90 |
| SeaTex 15 | 78 | 50 +- 2 | >90 |

Attenuation dB/100m

| Frequency (MHz) | 10 | 100 | 500 | 1000 | 2000 | 2400 | 3000 | 4000 | 5000 | 6000 | 8000 |
|-----------------|------|------|-----|------|------|------|------|------|------|------|------|
| SeaTex 10 | 1,2 | 4 | 9,6 | 14,2 | 21,2 | 23,6 | 26,7 | 31,1 | 35,2 | 39 | 46,4 |
| SeaTex 15 | 0,86 | 2,81 | 6,7 | 9,8 | 14,6 | 16,2 | 18,3 | 21,6 | 24,6 | 27,5 | |

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.

Radio frequency coaxial cable
Flame retardant Cat. A. Halogen free. Low smoke.

Type Approval documentation

Tests carried out

| Standard | Release | General description | Limitation |
|---------------|---------|--|-------------|
| IEC 60096-0-1 | 2012-10 | Radio frequency cables – Part 0-1: Guidelines to the design of detail specifications – Coaxial cables | Partly used |
| IEC 61196-9-1 | 2014-01 | Coaxial communication cables – Part 9: Sectional specification for RF flexibles cables | Partly used |

Job Id:
Certificate No: **TAE00001JX**

| Standard | Release | General description | Limitation |
|---------------|--------------------|--|---|
| IEC 60092-360 | 2014-04 | Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables. | |
| EC 60332-3-22 | 2009-02 | Tests on electric and optical fibre cables under fire conditions – Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category A | Charred portion of sample does not exceed 2,5m above bottom edge of burner. |
| IEC 60754-1 | 2011-11 | Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content | Low Halogen: <0,5% Halogen |
| 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 | Halogen free: pH > 4,3 Conductivity < 10µS/mm |
| IEC 60684-2 | 2011-08 | Item 45.2 Determination of low levels of fluorine | Fluorine content, maximum 0,1 % |
| IEC 61034-1/2 | 2013-07 2013-09 | Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements | Low smoke Light transmittance >60% |

Marking of product

www.ssb.de - SeaTex 10 - SHF2 - 50 Ohm - LowLoss - IEC 60332-3-22 - "sequential length in meter"
"WW" "internal lot number" Made in Germany

or

www.ssb.de - SeaTex 15 - SHF2 - 50 Ohm - LowLoss - IEC 60332-3-22 - "sequential length in meter"
"WW" "internal lot number" Made in Germany

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.

Assessment to be performed at least every second year.

END OF CERTIFICATE