# 船用网线 Marine Ethernet cable

## CAT 7A　AFR S/FTP 4PR 23AWG/1 SHF1 (TCWB)

HF　Flame　Oil　Cold　UV　Fire



## 应用 Application

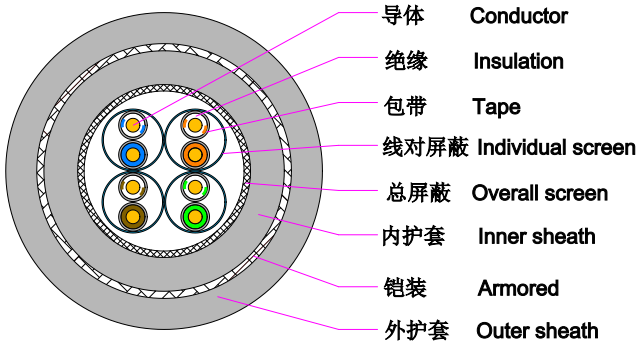
符合 IEC 61156-6 标准的高性能海上 LAN 电缆,带宽高达 1000 MHz。

High performance offshore LAN cable compliant with IEC 61156-6 category 7A standards bandwidths up to 1000 MHz.

铜导体，发泡 PE 绝缘，耐火云母带，铝箔对屏蔽，镀锡铜编织总屏蔽，SHF1 内护套，镀锡铜丝铠装，SHF1 外护套。

BC conductor ,Foam PE insulation ,Fire-resistant Mica tape ,Foil screened pairs with an overall tinned copper braid ,SHF1 inner sheath, Tinned copper wire armored,SHF1 Outer sheath.

## 结构 Construction




| | | |
|---|---|---|
| 导体 Conductor | 单根铜丝（23AWG/1） | Solid Bare copper wire（23AWG/1） |
| 绝缘 Insulation | 发泡 PE<br>颜色： 1、白/蓝，蓝 2、白/橙，橙<br>3、白/绿，绿 4、白/棕，棕 | Foam PE<br>Color：1、White/Blue，Blue 2、White/Orange，Orange<br>3、White/Green，Green 4、White/Brown，Brown |
| 包带 Tape | 耐火云母带 | Fire-resistant Mica tape |
| 线对屏蔽 Individual screen | 铝箔 | AL/Mylar |
| 总屏蔽 Overall screen | 镀锡铜编织，覆盖率≥60% | Tinned copper braiding, coverage≥60% |
| 内护套 Inner Sheath | SHF1 | SHF1 |
| 铠装 Armored | 镀锡铜丝铠装，覆盖率≥90% | Tinned copper wire braiding, coverage≥90% |
| 外护套 Outer Sheath | SHF1<br>颜色：灰色或定制<br>OD：12.5 ± 0.8mm | SHF1<br>Color ： Grey or as customer's request<br>OD：12.5 ± 0.8mm |
| 印字 Marking | Hysin□MARINE□Cable□CAT7A□AFR□S/FTP□4PR□23AWG/1□SHF1□TCWB□IEC60331-23□IEC60332-3-22□****m□xxxxxx□WW/YY<br>注：□ 表示空格；****m 表示计米；xxxxxx 表示批号;WW/YY 表示周数/年份<br>Note：□ means blank；****m means meters；xxxxxx means batch number；WW/YY means week/year | |

## 电气性能 Electrical Characteristics（20℃）

| | | |
|---|---|---|
| 导体直流电阻 | Conductor DC resistance | ≤95 Ω/km |
| 电阻不平衡 | DC Resistance Unbalance | ≤2%（within a pair），≤5%（between pairs） |
| 特性阻抗 | Characteristic impedance | 100±10 Ω@100MHz |
| 介电强度 | Dielectric Strength | DC 1kV for 1min（conductor to conductor, conductor to screen） |
| 绝缘电阻 | Insulation Resistance | ≥5000MΩ.km（IEC 61156-6） |
| 电容不平衡 | Capacitance Unbalance（pair to ground） | ≤160pF/100m at 1kHz(IEC 61156-6) |
| 传输性能 | Transmission performance | IEC 61156-6 |

| Frequency<br>频率<br>MHz | ATT<br>dB/100m<br>Max.最大 | RL<br>dB<br>Min.最小 | NEXT<br>dB<br>Min.最小 | PSNEXT<br>dB<br>Min.最小 | ELFEXT<br>dB<br>Min.最小 | PSELFEXT<br>dB<br>Min.最小 |
|---|---|---|---|---|---|---|
| 4 | 5.6 | 23.0 | 78.0 | 75.0 | 78.0 | 75.0 |
| 8 | 7.8 | 24.5 | 78.0 | 75.0 | 77.2 | 74.2 |
| 16 | 8.7 | 25.0 | 78.0 | 75.0 | 71.2 | 68.2 |
| 20 | 11.0 | 25.0 | 78.0 | 75.0 | 69.3 | 66.3 |
| 31.25 | 15.4 | 23.3 | 78.0 | 75.0 | 65.4 | 62.4 |
| 62.5 | 21.9 | 20.7 | 78.0 | 75.0 | 59.4 | 56.4 |
| 100 | 27.8 | 19.0 | 75.4 | 72.5 | 55.3 | 52.3 |
| 200 | 39.7 | 16.4 | 70.9 | 67.9 | 49.3 | 46.3 |
| 250 | 44.6 | 15.6 | 69.4 | 66.4 | 47.3 | 44.3 |
| 300 | 49.0 | 15.6 | 68.2 | 65.2 | 45.8 | 42.8 |
| 500 | 64.1 | 15.6 | 64.9 | 61.9 | 41.3 | 38.3 |
| 600 | 70.7 | 15.6 | 63.7 | 60.7 | 39.7 | 36.7 |
| 800 | 82.4 | 14.5 | 61.9 | 58.9 | 37.2 | 34.2 |
| 1000 | 92.9 | 13.7 | 60.4 | 57.4 | 35.3 | 32.3 |

## 其他性能 Other Characteristics

| | | |
|---|---|---|
| 工作温度 | Operating temperature | -40℃ to 90℃ |
| 安装温度 | Installation temperature | -20℃ to 60℃ |
| 卤酸气体 | Acid Gas Release Mounts | ≤5mg/g (IEC 60754-1) |
| 燃烧气体 PH 值 | Burning Occur Gas Acidity | PH≥4.3 (IEC 60754-2) |
| 燃烧气体导电率 | Burning Occur Gas conductivity | <10 μS/mm (IEC 60754-2) |
| 烟密度 | Smoke density | ≥60%（IEC 61034-2） |
| 阻燃性 | Flame resistance | IEC 60332-3-22, IEC 60332-1-2 |
| 耐火性 | Fire resistance | IEC 60331-23 |
| 耐油 | Oil resistance (SHF1) | IRM902, 70℃×4H |
| 抗紫外线 | UV resistance | UL1581 |
| 护套材料性能 | The jacket material performance | IEC 60092-360 |
| 最小弯曲半径 | Min.Bending radius | 15xOD(OD=cable diameter) |
| 重量 | Weight | 200±10 kg/km |

This cable meets RoHS requirements.

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