tBL® - S/FTP 4P AWG23/1 Cat.7A LSHF-FR

\*\*tBL® - tde Basic Link (TP)

tBL® tde Basic Link (TP) is a complete system solution for structured cabling in Cat6A for transfer rates of up to 10GbE in real time. The tBL® - cabling link corresponds to a permanent link in accordance with ISO / IEC 11801 (EN 50173). The RJ45 modules are available in the form factors  Keystone (KS) and Data Center (DC). The compact design of the 6fold RJ45 DC module allows a high packing density of up to 48 RJ45 ports on 1U. The RJ45 module is connected to the tBL® - cable termination block by simply plugging. The slim cable termination block can be easily assembled on the cable by using the tBL® - crimp tool and is suitable for preterminated cables. The modular design of individual RJ45 modules are interchangeable at any time without termination. A cost effective alternative product is the RJ45 keystone module without cable termination block in the tool-less design.
The system solution is complemented by an extensive portfolio of carrier systems. These include design-capable data outlets, floor box frames, Consolidation points, DIN rail modules and patch panels in 1/2 and 1U.

\*\*TP Cable

Application
Primär (Campus), Sekundär (Riser), Tertiär (Horizontal)
IEEE 802.3: 10Base-T, 100Base-T, 1000Base-T, 10GBase-T; IEEE 802.5
ISDN, TPDDI, ATM, CATV, Breitband-Video
Power over Ethernet (PoE) / PoE+
Standards
EN 50173-1; EN 50288-9-1; ISO/IEC 11801; IEC61156-5; IEEE 802.3at
Standards
LSHF-FR (LSOH-FR): IEC 60332-1; IEC 60332-3-24; IEC 60754-2; IEC 61034; EN 50399 Class Dca

\*\*TECHNISCHE\_DATEN

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| Conductor | Bare copper wire Ø 0.58 mm (AWG 23/1) |
| Insulation | Foam-Skin PE, Ø 1.4 mm |
| Twisting | 2 cores to the pair |
| Pair screen | Al-laminated plastic foil |
| Cable lay up | 4 pairs |
| Sreen | Copper braid, tinned (approx. 65%) |
| Sheath | Halogen free, flame and fire retardant sheathing material: LSHF-FR (LSFROH), yellow, (RAL 1028) |

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| Minimum bending radius | Without load | ≥ 30 mm |
|  | With load | ≥ 60 mm |
| Temperature range | During operation | -20°C up to +60°C |
|  | During installation | 0°C up to +50°C |

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| Loop resistance |  | ≤ 135 Ω/km |
| Resistance unbalance |  | ≤ 2% |
| Insulation resistance | 500 V | ≥ 5000 MΩ\*km |
| Mutual capacitance | at 800 Hz | Nom. 43 nF/km |
| Capacitance unbalance | (pair/ground) | ≤ 1500 pF/km |
| Characteristic impedance | 100 MHz | (100 ± 5) Ω |
| Nominal velocity of propagation |  | ca. 76% |
| Propagation delay |  | 439 ns/100m |
| Delay skew |  | 12 ns/100m |
| Test voltage | (DC, 1 min) core/core and core/screen | 1000 V |
| Transfer impedance | at 1 MHz | ≤ 5 mΩ/m |
|  | at 10 MHz | ≤ 5 mΩ/m |
|  | at 30 MHz | ≤ 10 mΩ/m |
| Coupling attenuation |  | ≥ 85 dB |

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| F MHZ | Attenuation dB/100m | NEXT dB | PS- NEXT dB | ACR dB/100m | PS-ACR dB/100m | ELFEXT dB/100m | PS- ELFEXT dB/100m | Returnloss dB |
| 1.0 | 1.8 | 100 | 97 | 98 | 95 | 105 | 103 | 22 |
| 4.0 | 3.4 | 100 | 97 | 97 | 94 | 93 | 91 | 25 |
| 10.0 | 5.4 | 100 | 97 | 95 | 92 | 85 | 83 | 27 |
| 16.0 | 6.8 | 100 | 97 | 93 | 90 | 81 | 79 | 27 |
| 20.0 | 7.7 | 100 | 97 | 92 | 89 | 79 | 77 | 27 |
| 31.2 | 9.6 | 100 | 97 | 90 | 87 | 75 | 73 | 26 |
| 62.5 | 13.7 | 100 | 97 | 86 | 83 | 69 | 67 | 24 |
| 100.0 | 17.4 | 100 | 97 | 83 | 80 | 65 | 63 | 22 |
| 125.0 | 18.6 | 95 | 92 | 76 | 73 | 63 | 61 | 21 |
| 155.5 | 19.5 | 95 | 92 | 75 | 69 | 61 | 59 | 21 |
| 175.0 | 22.1 | 92 | 89 | 70 | 67 | 60 | 58 | 20 |
| 200.0 | 25.0 | 92 | 89 | 67 | 64 | 59 | 57 | 20 |
| 250.0 | 28.1 | 90 | 87 | 62 | 59 | 57 | 55 | 19 |
| 300.0 | 30.9 | 89 | 86 | 58 | 55 | 55 | 53 | 19 |
| 450.0 | 37.4 | 87 | 84 | 50 | 47 | 52 | 50 | 19 |
| 600.0 | 44.8 | 85 | 82 | 40 | 37 | 49 | 47 | 19 |
| 750.0 | 50.5 | 83 | 80 | 32 | 29 | 59 | 56 | 19 |
| 900.0 | 55.9 | 82 | 79 | 26 | 23 | 58 | 55 | 19 |
| 1000.0 | 58.5 | 82 | 79 | 24 | 21 | 57 | 54 | 19 |
| 1200.0 | 63.4 | 81 | 78 | 19 | 16 | 52 | 49 | 17 |

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| Outerdiameter | 7.8 mm |
| Fire load | 589 MJ/km |
| Weight | 68 kg/km |
| Copper content | 39 kg/km |
| Tensile force | 340 N |