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|-----------------------------------|--|---|
| <b>2170962</b>                    | <b>DATA SHEET</b>  |  |
| <b>valid from:<br/>02.07.2020</b> | <b>ETHERLINE® LAN 500 Cat.6A F/FTP LSZH<br/>4x2x23/1 AWG</b> |   |

## Application

|                  |  |
|------------------|--|
| Field of use:    | Installation cable for generic cabling systems acc. to ISO/IEC 11801 and EN 50173                          |
| Performance:     | Bandwidth up to 500 MHz acc. to IEC 61156-5 Category 6A and EN 50288-10-1 and applications up to 10GBase-T |
| Characteristics: | halogen free, flame retardant and largely resistant to acids, alkalis and certain oils                     |
| Applications:    | PROFINET, EtherCAT, EtherNet/IP, PoE (IEEE 802.3af), PoE+ (IEEE 802.3at) and many others                   |




## Design

|                          |   |
|--------------------------|---|
| Certification            | EN 13501-6 and EN 50575 Classification of fire behaviour  |
| Conductor                | solid bare copper<br>23/1 AWG   |
| Insulation               | Polyethylene<br>core Ø: ca. 1.3 mm  |
| Core identification code | pair 1: white(-blue)/blue, pair 2: white(-orange)/orange,<br>pair 3: white(-green)/green, pair 4: white(-brown)/brown |
| Stranding                | 2 cores stranded to pair,<br>4 pairs stranded to bundle with central drain wire                                       |
| Pair screen              | plastic laminated aluminium foil (overlapping)  |
| Screen                   | plastic laminated aluminium foil (overlapping)  |
| Outer sheath             | LSZH<br>orange, similar RAL 2003<br>outer Ø: 7.3 mm (± 0.3 mm)  |

## Electrical properties at 20°C

|                          |                                |
|--------------------------|--------------------------------|
| Loop resistance          | max. 16.0 Ω/100 m              |
| Insulation resistance    | min. 5 GΩ x km                 |
| Mutual capacitance       | nom. 43 nF/km                  |
| Coupling attenuation     | > 55 dB (30 MHz - 500 MHz)     |
| Characteristic impedance | nom. 100 Ω acc. to IEC 61156-5 |
| Velocity of propagation  | 0.78 c                         |
| Signal propagation time  | ≤ 480 ns/100 m                 |
| Delay skew               | ≤ 20 ns/100 m                  |
| Peak operating voltage   | 100 V (not for ower purposes)  |
| Test voltage             | core/core: 1000 V              |

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### Electrical transmission properties at 20°C

The transmission characteristics meet the requirements of the standards EN 50288-10-1 and IEC 61156-5 for category 6A. The normative requirements for the transmission properties are shown in the following table:

| f [MHz]              |            | 4    | 10   | 20   | 62,5 | 100  | 200  | 250  | 500  |
|----------------------|------------|------|------|------|------|------|------|------|------|
| (max.) Attenuation   | [dB/100 m] | 3,8  | 5,9  | 8,4  | 15   | 19,1 | 27,6 | 31,1 | 45,3 |
| (min.) TCL           | [dB]       | 34   | 30   | 27   | 22   | 20   | 17   | 16   | —    |
| (min.) EL TCTL       | [dB/100 m] | 23   | 15   | 9    | —    | —    | —    | —    | —    |
| (min.) NEXT          | [dB]       | 66,3 | 60,3 | 55,8 | 48,4 | 45,3 | 40,8 | 39,3 | 34,8 |
| (min.) PS EL FEXT    | [dB/100 m] | 53   | 45   | 39   | 29,1 | 25   | 19   | 17   | 11   |
| (min.) ACR-F/EL FEXT | [dB/100 m] | 56   | 48   | 42   | 32,1 | 28   | 22   | 20   | 17   |
| (min.) Return Loss   | [dB]       | 23   | 25   | 25   | 21,5 | 20,1 | 18   | 17,3 | 17,3 |

### Mechanical and thermal properties

|                           |   |                     |
|---------------------------|---|---------------------|
| Minimum bending radius    | fixed:  | 4x cable Ø          |
|                           | occasional flexing:   | 8x cable Ø          |
| Temperature range         | fixed:  | -20 °C up to +60 °C |
|                           | occasional flexing:   | 0 °C up to +50 °C   |
| Flammability              | flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2  |                     |
| Halogen free              | acc. to IEC 60754-1 resp. EN 60754-1  |                     |
| Corrosivity of gases      | acc. to IEC 60754-2 resp. EN 60754-2  |                     |
| Smoke density             | acc. to IEC 61034 resp. EN 61034  |                     |
| General requirements      | These cables conform to the EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances) and the LV-Directive 2014/35/EU (Low voltage Directive). This cable is classified in accordance with the EU-Regulation no. 305/2011 (CPR). |                     |
| Environmental information | These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).  |                     |

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