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|-----------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>2170592</b>                    | <b>DATA SHEET</b>                                  |  |
| <b>valid from:<br/>23.06.2021</b> | <b>ETHERLINE® Cat.6A P FD FC 4x2x26/19<br/>AWG</b> |                                                                                     |

## Application

|                  |                                                                                                                                                                   |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Field of use:    | Connecting cable for generic cabling systems acc. to ISO/IEC 11801 and EN 50173                                                                                   |
| Performance:     | Bandwidth up to 500 MHz acc. to IEC 61156-6 Category 6A and EN 50288-10-2                                                                                         |
| Characteristics: | Halogen free, flame retardant and largely resistant to acids, alkalis and certain oils, the "Fast Connect" design allows easy stripping and assembly of the cable |
| Applications:    | PROFINET, EtherCAT, EtherNet/IP, Power over Ethernet (IEEE 802.3af), Power over Ethernet Plus (IEEE 802.3at) and many others                                      |



## Design

|                          |                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Certification            | E236660 c(UL)us CMX 75°C acc. to UL 444 and CSA C22.2 No. 214                                                                    |
| Conductor                | fine-wire stranded tinned copper<br>26/19 AWG                                                                                    |
| Insulation               | polyolefin<br>core diameter: nom. 1.05 mm                                                                                        |
| Core identification code | pair 1: blue-white/blue, pair 2: orange-white/orange, pair 3: green-white/green, pair 4: brown-white/brown                       |
| Stranding                | 2 cores stranded to pair,<br>4 pairs stranded to bundle with central separating element<br>on top:<br>plastic tape (overlapping) |
| Inner sheath             | TPE<br>outer diameter: nom. 6.2 mm                                                                                               |
| Screen                   | plastic laminated aluminium foil (overlapping)<br>on top:<br>braid of tinned copper wires (coverage 85 % ± 5 %)                  |
| Taping                   | plastic tape (overlapping)                                                                                                       |
| Outer sheath             | PUR<br>green, similar RAL 6018<br>outer diameter: nom. 8.8 mm (± 0.3 mm)                                                         |

## Electrical properties at 20 °C

|                           |                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------|
| Loop resistance           | ≤ 20.4 Ω/100 m                                                                    |
| Insulation resistance     | ≥ 5 GΩxkm                                                                         |
| Mutual capacitance        | 800 Hz: 52 nF/100 m                                                               |
| Transfer impedance        | 1 MHz: ≤ 20 mΩ/m<br>10 MHz: ≤ 20 mΩ/m<br>30 MHz: ≤ 50 mΩ/m<br>100 MHz: ≤ 200 mΩ/m |
| Coupling attenuation      | 30 MHz bis 500 MHz: ≥ 90 dB                                                       |
| Characteristic impedance  | 100 MHz: 100 Ω acc. to IEC 61156-6                                                |
| Velocity of propagation   | 100 MHz: 0.67c                                                                    |
| Signal propagation time   | 4 MHz up to 500 MHz: ≤ 520 ns/100 m                                               |
| Delay skew                | 4 MHz up to 500 MHz: ≤ 25 ns/100 m                                                |
| Maximum operating voltage | EN: 100 V (not for power applications)                                            |
| Rated voltage             | UL/CSA: 300 V                                                                     |
| Test voltage              | core/core: 2000 V<br>core/screen: 2000 V                                          |

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|----------------------|-----------------------|-------------|
| Creator: KIOS / PDC  | Document: DB2170592EN | Page 1 of 2 |
| Released: ALTE / PDC | Version: 01           |             |

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|-----------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------|
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### Electrical transmission properties at 20°C

The transmission characteristics meet the requirements of the standards EN 50288-10-2 and IEC 61156-6 for category 6A.  
The normative requirements for the transmission properties are shown in the following table:

| <b>f [MHz]</b>       |            | <b>4</b> | <b>10</b> | <b>16</b> | <b>62,5</b> | <b>100</b> | <b>250</b> | <b>500</b> |
|----------------------|------------|----------|-----------|-----------|-------------|------------|------------|------------|
| (max.) Attenuation   | [dB/100 m] | 5,7      | 8,9       | 11,2      | 22,5        | 28,7       | 46,6       | 67,9       |
| (min.) TCL           | [dB]       | 34       | 30        | 28        | 22          | 20         | 16         | —          |
| (min.) EL TCTL       | [dB/100 m] | 23       | 15        | 10,9      | —           | —          | —          | —          |
| (min.) NEXT          | [dB]       | 66,3     | 60,3      | 57,2      | 48,4        | 45,3       | 39,3       | 34,8       |
| (min.) PS EL FEXT    | [dB/100 m] | 53       | 45        | 40,9      | 29,1        | 25         | 17         | 11         |
| (min.) ACR-F/EL FEXT | [dB/100 m] | 56       | 48        | 43,9      | 32,1        | 28         | 20         | 14         |
| (min.) Return Loss   | [dB]       | 23       | 25        | 25        | 21,5        | 20,1       | 17,3       | 17,3       |

### Mechanical and thermal properties

|                                                     |                                                                                                                                                                                                        |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minimum bending radius                              | flexing: 15 x outer diameter<br>fixed installation: 4 x outer diameter                                                                                                                                 |
| Temperature range                                   | flexing: -30 °C up to +50 °C<br>fixed installation: -40 °C up to +80 °C<br>UL/CSA: 75 °C                                                                                                               |
| Bending cycles and power chain operation parameters | bending radius: ≥15 x outer diameter<br>travel distance: ≤ 5 m<br>Acceleration: ≤ 3 m/s <sup>2</sup><br>Velocity: ≤ 3 m/s<br>Cycles: ≤ 1.000.000<br>Please comply with assembly guideline Appendix T3. |
| Flammability                                        | flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2<br>VW-1 acc. to UL 1581 §1080                                                                                                                 |
| Halogen free                                        | acc. to VDE 0472-815                                                                                                                                                                                   |
| UV resistance                                       | acc. to EN ISO 4892-2-2013, method A (change of colour allowed)                                                                                                                                        |
| Oil resistance                                      | acc. to EN 50363-10-2                                                                                                                                                                                  |
| General requirements                                | This cable is conform to EU-Directive 2014/35/EU (Low Voltage Directive) and to EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances).                                |
| Environmental information                           | These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).                                                                                                           |

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|----------------------|-----------------------|-------------|
| Creator: KIOS / PDC  | Document: DB2170592EN | Page 2 of 2 |
| Released: ALTE / PDC | Version: 01           |             |