

|                                   |                                                       |                                                                                     |
|-----------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>2170608</b>                    | <b>DATA SHEET</b>                                     |  |
| <b>valid from:<br/>16.11.2020</b> | <b>ETHERLINE® PN Cat.7 Y FLEX A<br/>4x2x 23/7 AWG</b> |                                                                                     |

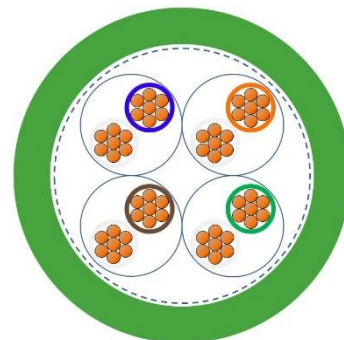
## Application

ETHERLINE® PN CAT.7 Y FLEX A (bandwidth up to 600 MHz), has a performance for the cabling class “F” and a maximum transfer rate (IEEE 802.3) of 10 GBit/s to 100m. The electrical parameter of the cable with a nominal impedance of 100  $\Omega$  and excellent shielding properties (pair and total screen) are normatively specified to IEC 61156-5.

It is provided for industrial secondary and tertiary cable according to EN 50173-3 ISO/IEC 24702. Other applications are Profinet with 4 Pairs, EtherCAT, EtherNet/IP, Power over Ethernet (IEEE's 802.3af) and Power over Ethernet Plus (802.3at).

The product is flame retardant has a moderate oil resistant and comes in rough industrial environments for use.

It is suitable for fixed installation and serves to wiring of machines, tools , devices , appliances and control cabinets.



## Design

|                          |                                                                                                                                          |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Certification            | c(UL)us CMG 75°C acc. to UL 444 and CSA C22.2 No. 214-17<br>(UL) CL3 ST-1 acc. to UL 13<br>RU AWM Style 21695 80°C, 600 V acc. to UL 758 |
| Conductor                | stranded bare copper<br>23/7 AWG                                                                                                         |
| Insulation               | foamed polyolefin<br>core diameter: ca. 1.53 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 together                                                                                   |
| Pair screen              | plastic laminated aluminium foil (overlapping)                                                                                           |
| Screen                   | braid of tinned copper wires (coverage 85 % $\pm$ 5 %)                                                                                   |
| Outer sheath             | PVC<br>green, similar RAL 6018<br>outer diameter: 8.7 mm ( $\pm$ 0.3 mm)                                                                 |

## Electrical properties at 20°C

|                          |                                                            |
|--------------------------|------------------------------------------------------------|
| Loop resistance          | max. 13.84 $\Omega$ /100 m                                 |
| Insulation resistance    | min. 5 G $\Omega$ xkm                                      |
| Mutual capacitance       | nom. 44 nF/km                                              |
| Characteristic impedance | nom. 100 $\Omega$ acc. to IEC 61156-6                      |
| Velocity of propagation  | 0.75c                                                      |
| Signal propagation time  | $\leq$ 470 ns/100 m                                        |
| Delay skew               | $\leq$ 25 ns/100 m                                         |
| Operating voltage (max.) | EN: 125 V (not for power purposes)                         |
| Rated voltage            | UL: 300 V acc. to UL 444 and UL 13<br>600 V acc. to UL 758 |
| Test voltage             | core/core: 2000 V<br>core/screen: 2000 V                   |

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### Electrical transmission properties at 20°C

The transmission characteristics meet the requirements of the standards EN 50288-4-2 and IEC 61156-6 for category 7. The normative requirements for the transmission properties are shown in the following table:

| <b>f [MHz]</b>       |            | <b>4</b> | <b>10</b> | <b>20</b> | <b>62,5</b> | <b>100</b> | <b>200</b> | <b>250</b> | <b>500</b> | <b>600</b> |
|----------------------|------------|----------|-----------|-----------|-------------|------------|------------|------------|------------|------------|
| (max.) Attenuation   | [dB/100 m] | 5,5      | 8,5       | 21,1      | 21,7        | 27,8       | 40,1       | 45,3       | 66,2       | 73,3       |
| (min.) TCL           | [dB]       | 34       | 30        | 27        | 22          | 20         | 17         | 16         | 13         | 12,2       |
| (min.) EL TCTL       | [dB/100 m] | 23       | 15        | 9         | —           | —          | —          | —          | —          | —          |
| (min.) NEXT          | [dB]       | 80       | 80        | 80        | 75,5        | 72,4       | 67,9       | 66,5       | 61,9       | 60,8       |
| (min.) PS EL FEXT    | [dB/100 m] | 77       | 71        | 65        | 55,1        | 51         | 45         | 43         | 37         | 35,4       |
| (min.) ACR-F/EL FEXT | [dB/100 m] | 80       | 74        | 68        | 58,1        | 54         | 48         | 46         | 40         | 38,4       |
| (min.) Return Loss   | [dB]       | 23       | 25        | 25        | 21,5        | 20,1       | 18         | 17,3       | 17,3       | 17,3       |

### Mechanical and thermal properties

|                           |                                                                                                                                                                         |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minimum bending radius    | fixed installation: 4x outer diameter<br>occasional flexing: 8x outer diameter                                                                                          |
| Temperature range         | fixed installation: -30 °C up to +80 °C<br>occasional flexing: -5 °C up to +50 °C<br>c(UL)us CMG: +75 °C<br>UL CL3 ST-1: +75 °C<br>RU AWM: +80 °C                       |
| Flammability              | flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2<br>FT4 acc. to UL 2556 §12 - §19<br>HFT/FT2 acc. to UL 2556 §9.1 and UL 1581 §1100                             |
| Smoke density             | ST-1 acc. to UL 13 §28.4                                                                                                                                                |
| UV resistance             | SUN RES acc. to UL 13 §29.1                                                                                                                                             |
| Oil resistance            | acc. to EN 50290-2-22                                                                                                                                                   |
| 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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