

2170937

DATA SHEET

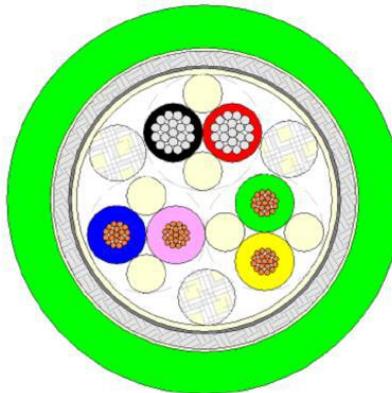
valid from:
29.11.2019ETHERLINE® SERVO DQ FD P Cat.5e
2X2X26/19 AWG + 1x2x22/19 AWG

LAPP

Application

ETHERLINE® SERVO DQ FD Cat.5e is a signal cable for use in SIEMENS® SINAMICS S120 drive systems, and is conform to the open DRIVE-CLiQ encoder interface. With its one pair for power supply and two data signal pairs for Cat. 5e data transmission, the cable is suitable for application in the industrial environments. With its conductor construction as well as additional fillers, the cable is designed for applications in power chains and on permanently moved machine parts in dry and damp areas. The data pairs comply with the requirements of IEC 61156-6.

Design



Certification

Insulation: UL AWM style 11602 (300 V, 80°C) acc. to UL 758;
 Jacket: UL AWM style 20978 (300 V, 80°C) acc. to UL 758;
 cRUI AWM I/II A/B (FT1) acc. to CSA C22.2 No. 210-15
 VW-1 according to UL 1581

Data pairs

Conductor bare copper, fine-wire stranded
 Insulation solid polyethylene
 core Ø: 0.90 mm
 Core identification code green/yellow, blue/pink
 Stranding twisted to pairs with fillers

Power pair

Conductor tinned copper, fine-wire stranded
 Insulation solid polyethylene
 core Ø: 1.05 mm
 Core identification code red, black
 Stranding twisted to a pair with fillers

Global assembly

data pairs and power pair stranded together with fillers
 Wrapping non-woven tape, overlapping
 Screen plastic laminated aluminum foil (metal surface outside, overlapping
on top:
 braid of tinned copper wires
 coverage 85 % ± 5 %

Separator

non-woven tape, overlapping

Outer sheath

PUR, halogen free and flame retardant
 outer Ø: 6.9 mm ± 0.2 mm
 green, RAL 6018

Electrical properties at 20°C

Loop resistance data pairs (26/19 AWG): max. 14.60 Ω/100 m
 power pair (22/19 AWG): max. 5.94 Ω/100 m

Insulation resistance min. 2 GΩxkm

Mutual capacitance 1 kHz: nom. 50 nF/km

AbN
automation

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Characteristic impedance	100 Ω acc. to IEC 61156-6
	100 MHz: 100 Ω ± 15 Ω
Velocity of propagation	0.67 c
Signal propagation time	max. 520 ns/100 m
Delay skew	max. 20 ns/100 m
Peak operating voltage	30 V
Test voltage	conductor/conductor: 1500 V conductor/screen: 1000 V

Mechanical and thermal properties

Minimum bending radius	fixed installation: 6x cable Ø moved: 8x cable Ø
Temperature range	fixed installation: -40 bis +80 °C moved: -30 bis +70 °C
Flammability	flame retardant acc. to IEC 60332-1-2, VW-1 acc. to UL 1581, FT1 acc. to UL 1581
Halogen free	EN 50267-2-1, VDE 0472-815
Oil resistance	EN 50363-10-2
General requirements	This cable is conform to the EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances).

Transmission properties

The transmission properties meet the Cat.5e requirements of IEC 61156-6.

Typical transmission properties:

f [MHz]	Attenuation [dB/100m]	NEXT [dB/100m]	ACR-F [dB/100m]	RL [dB/100m]
1	2.7	70.0	67.3	29
4	5.4	61.0	55.6	30
10	8.5	56.0	47.5	31
16	11.3	53.0	41.7	31
31,25	16.0	48.0	32.0	27
62,5	23.4	43.0	19.6	27
100	29.7	40.0	10.3	25

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