
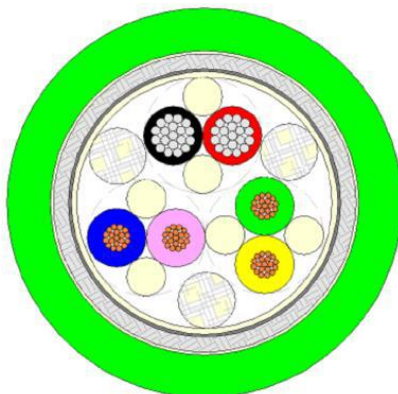


<b>2170937</b>	<b>DATA SHEET</b>	
<b>valid from:</b> 29.11.2019	<b>ETHERLINE® SERVO DQ FD P Cat.5e</b> <b>2X2X26/19 AWG + 1x2x22/19 AWG</b>	

## 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;  
cRU 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: 1x2x22/19 AWG  
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

Wrapping: data pairs and power pair stranded together with fillers  
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:

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

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