


2170938	DATA SHEET	
valid from: 01.06.2022	ETHERLINE® SERVO DQ Y Cat.5e 2×2×26/7 AWG + 1×2×22/7 AWG	

Application

Field of use:	ETHERLINE® Servo DQ Y Cat.5e is a servo encoder cable suitable for the SIEMENS standard Drive Cliq™ for the SINAMICS driver series acc. to the general standards ISO/IEC 11801 and EN 50173
Performance:	2-data pair, screened foiled twisted pair cable (SF/UTP), having a nominal impedance of 100 Ω, supporting a bandwidth of 100 Mbit/s (e.g. 10BASE-T, 100BASE-T) over up to 100 m.
Characteristics:	flame retardant
Applications:	EtherCAT, EtherNet/IP and others



Design

Data pairs	2×2×26/7 AWG
Conductor	stranded bare copper
Insulation	polyolefine core diameter: nom. 1.05 mm
Core identification code	green/yellow, blue/pink
Stranding	twisted to pairs (with optional fillers)


Power pair	1×2×22/7 AWG
Conductor	stranded tinned copper
Insulation	polyolefine core diameter: nom. 1.05 mm
Core identification code	red, black
Stranding	twisted to a pair (with optional fillers)

Complete cable	
Global assembly	data pairs and power pair stranded together (with optional fillers)
Wrapping	non-woven tape (overlapping)
Screen	plastic laminated aluminum foil (metal surface outside, overlapping) <u>on top:</u> braid of tinned copper wires (coverage 80 % ± 5 %)
Separator	non-woven tape (overlapping)
Outer sheath	PVC green, similar RAL 6018 outer diameter: 6.5 mm ± 0.3 mm

Electrical properties at 20°C

Data cores	26/7 AWG	
Loop resistance		≤ 28.0 Ω/100 m
Insulation resistance		≥ 5 GΩxkm
Mutual capacitance	1 kHz:	nom. 50 nF/km
Capacitance unbalance	1 kHz:	≤ 1600 pf/km
Transfer impedance	1 MHz:	≤ 25 mΩ/m
	10 MHz:	≤ 50 mΩ/m
	30 MHz:	≤ 100 mΩ/m
	100 MHz:	≤ 1000 mΩ/m
Coupling attenuation	30 MHz - 100 MHz:	≥ 85 dB
	100 MHz - 1000 MHz:	≥ 85 dB - 20×log10(f / 100) dB
Characteristic impedance	100 MHz:	100 Ω acc. to IEC 61156-6
Velocity of propagation	100 MHz:	0.67 c
Signal propagation time	4 MHz - 100 MHz:	≤ 520 ns/100 m

Creator: KIOS / PDC	Document: DB2170938EN	Page 1 of 2
Released: ALTE / PDC	Version: 01	

2170938	DATA SHEET	
valid from: 01.06.2022	ETHERLINE® SERVO DQ Y Cat.5e 2×2×26/7 AWG + 1×2×22/7 AWG	

Delay skew	4 MHz – 100 MHz:	≤45 ns/100 m
Maximum operating voltage		100 V (not for power applications)
Test voltage	conductor/conductor:	700 V AC
	conductor/screen:	700 V AC

Power cores **22/7 AWG**

Loop resistance		≤ 28.0 Ω/100 m
Insulation resistance		≥ 5 GΩxkm
Nominal voltage		30 V
Test voltage	conductor/conductor:	700 V AC
	conductor/screen:	700 V AC

Transmission properties

The transmission characteristics meet the requirements of the standard IEC 61156-6 for category 5e. The normative requirements for the transmission properties are shown in the following table exemplary:

f [MHz]		4	10	16	20	31,25	62,5	100
(max.) Attenuation	[dB/100 m]	6,0	9,5	12,1	13,5	17,1	24,8	32,0
(min.) NEXT	[dB]	56,3	50,3	47,2	45,8	42,9	38,4	35,3
(min.) PS NEXT	[dB]	53,3	47,3	44,2	42,8	39,9	35,4	32,3
(min.) ACR-F/EL FEXT	[dB/100 m]	55,0	49,0	45,9	44,5	41,6	37,1	34,0
(min.) PS EL FEXT	[dB/100 m]	52,0	46,0	42,9	41,5	38,6	34,1	31,0
(min.) Return Loss	[dB]	23,0	25,0	25,0	25,0	23,3	20,7	19,0

Mechanical and thermal properties

Minimum bending radius	fixed installation:	6 × outer diameter
	occasional flexing:	15 × outer diameter
Temperature range	fixed installation:	-15 °C up to +70 °C
	occasional flexing:	-5 °C up to +70 °C
Flammability		flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2

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).

Creator: KIOS / PDC	Document: DB2170938EN	Page 2 of 2
Released: ALTE / PDC	Version: 01	