

# ADTRONICS® AD-C4C6AFU Cat.6A F/UTP

## F/UTP Installation Cable

### Product Description

The Cable's performance Adtronics F/UTP CAT.6A exceeds the requirements of ISO / IEC 11801. This cable is designed for network cabling systems, It is available in simplex building with PVC sheath or LSZH and box drawing or reel. Full compliance to latest standards for Category 6A and Class EA Class Ea Frequency (following standards) 500 MHz.

### Technical Specifications

#### Transmission Performance :

##### In accordance with the requirements of Cat.6A :

- ISO/IEC 11801 2<sup>nd</sup> edition
- IEC 61156-5
- EN 50173-1 2<sup>nd</sup> edition
- EN 50288-4-1
- ANSI/TIA/EIA 568 B-2.10
- ANSI/TIA-568 C-2



#### LSZH version with respect :

Fire class	IEC 60332-1
Toxicity to	IEC 60754-1
Acid gases	IEC 60754-2
Densitéde smoke	IEC 61034-2

#### Applications :

IEEE 802.3bt (PoE++), 802.3an, 802.3at, 802.3af, IEEE 802.5 16MB, 10 Gbase-T, 1000 Base-T, Fast Ethernet 100 Base-T, Ethernet 10 Base-T, Token Ring, ATM 155 Mbps, ISDN, FDDI, Analog video (Broadband, Baseband) and Analog and Digital voice (VoIP)

#### Version with PVC respecting :

Fire Class	IEC 60332-1
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#### Cable construction :

The horizontal cabling includes four twisted pairs unshielded rigid wire of AWG 23 and PVC or LSZH sheath.

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### Physical Characteristics

Materials	
Copper conductor	gauge AWG 23: 0.546 mm ≤ Φ < 0.610 mm
insulation	Φ1.0 mm PE
Sheath	PVC for AD-C4C6AFUPVC
<b>Sheath</b>	LSZH for AD-C4C6AFULSZH
Dimensions & Weight	
Cable's diameter	5.7 mm
Weight of cable	42 Kg/Km for AD-C4C6AFUPVC (PVC)
Weight of cable	43 Kg/Km for AD-C4C6AFULSZH (LSZH)
Mechanical characteristics	
Bending radius during installation	≥8x OD
Radius of curvature after installing	≥4x OD
Voltage during installation	≤90 N
Environmental characteristics	
Operating temperature	-20 °C à +60 °C
Installation temperature	0 °C à +50 °C
Fire class	IEC 60332-1
Combustion energy	0.43 MJ/m for AD-C4C6AFUPVC (PVC)
	0.60 MJ/m for AD-C4C6AFULSZH (LSZH)

Impedance @ 100 MHz	100 ±15 Ω	<table border="1"> <thead> <tr> <th>0--X</th> <th>Packaging</th> </tr> </thead> <tbody> <tr> <td>0--2</td> <td>305 m/reel in a box</td> </tr> <tr> <td>0--3</td> <td>1000m/reel</td> </tr> </tbody> </table>	0--X	Packaging	0--2	305 m/reel in a box	0--3	1000m/reel
0--X	Packaging							
0--2	305 m/reel in a box							
0--3	1000m/reel							
NVP	71%							
DC loop resistance	≤19.0 Ω/100 m							
Mutual capacitance	≤56 nF/ km							

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### MECHANICAL

Characteristics		Values
Bending radius	Dynamic (installation)	<sup>3</sup> 50 mm
	Static (installed)	<sup>3</sup> 25 mm
Temperature range	In service	- 20°C at + 60°C
	At the installation	0°C at + 50°C
	Transport and storage	0°C at + 50°C

### ELECTRICAL

Characteristics		Values	
Complete conductor resistance		≤ 190 Ω / km	
Resistance unbalance		≤ 2 %	
Dielectric strength	Continuous current	1kV during 1 minute = No breakdown	
Insulation resistance	(500 V)	≥ 5000 MΩ . km	
Capacitance unbalance	Real-ground	≤ 1600 pF / km	
Characteristic impedance	at 100 MHz	100 ± 5 Ω	
Velocity	Nominal	78 %	
Coupling attenuation			
		≥ 55 dB	TYPE 2
Transfer impedance	At 1 MHz	≤ 40 mΩ / m	GRADE 2
	At 10 MHz	≤ 40 mΩ / m	
	At 30 MHz	≤ 50 mΩ / m	
	At 100 MHz	≤ 200 mΩ / m	
Segregation classification acc. EN 50174-2		"c"	

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### Construction

Conductor	bare copper wire $\varnothing$ 0.565 mm (AWG23)
Insulation	Solid Polyethylene, $\varnothing$ 1.20 mm
Twisting	2 cores to the pair
Cable lay up	4 pairs
Pair screen	N/A
Overall screen	High Performance-FTP: Al-laminated plastic foil,
Sheath	LSZH IV RAL1015

### Mechanical Properties

Bending radius	without load	$\geq 40$ mm
	with load	$\geq 80$ mm
Temperature range	during operation	-20°C to + 60°C
	during installation	0°C to + 50°C

### Electrical Properties

at 20°C  $\pm$  5°C

DC loop resistance		$\leq 150$ $\Omega$ /km
Resistance unbalance		$\leq 2\%$
Insulation resistance	(500 V)	$\geq 5000$ M $\Omega$ xkm
Capacitance	at 800 Hz	Nom. 43 nF/km
Capacitance unbalance	(pair to ground)	$\leq 1500$ pF/km
Characteristic impedance	(1-100 MHz)	(100 $\pm$ 15)
	(100-2500 MHz)	(100 $\pm$ 18)
Nominal velocity of propagation		approx. 66%
Propagation delay		$\leq 427$ ns/100 m
Delay skew		$\leq 12$ ns/100 m
Test voltage	(DC, 1 min) Core/Core and Core/Screen	1000 V
Transfer impedance	at 1 MHz	$\leq 50$ m $\Omega$ /m
	at 10 MHz	$\leq 100$ m $\Omega$ /m
	at 30 MHz	$\leq 200$ m $\Omega$ /m
	at 100 MHz	$\leq 1000$ m $\Omega$ /m

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### Nominal Transmission Characteristics / acc. to Category 6 (at 20°C)

F (MHZ)	Attenuation (dB/100m)		NEXT (dB)		PS-NEXT (dB)		ELFEXT (dB/100m)		PS-ELFEXT (dB/100m)		Return loss (dB)
	Max.	Nom.	Min.	Nom.	Min.	Nom.	Min.	Nom.	Min.	Nom.	
1.0	2.0	2.0	74.3	90.0	72.3	87.0	67.8	75.0	64.8	72.0	20.0
4.0	3.7	3.6	65.3	89.0	63.3	86.0	55.8	75.0	52.8	72.0	23.0
10.0	5.9	5.6	59.3	89.0	57.3	86.0	47.8	75.0	44.8	72.0	25.0
16.0	7.4	7.0	56.3	86.0	54.2	83.0	43.7	71.0	40.7	68.0	25.0
20.0	8.3	7.8	54.8	84.0	52.8	81.0	41.8	69.0	38.8	66.0	25.0
31.2	10.4	10.1	51.9	81.0	49.9	78.0	37.9	65.0	34.9	62.0	23.6
62.5	14.9	14.8	47.4	77.0	45.4	74.0	31.9	59.0	28.9	56.0	21.5
100.0	19.0	18.5	44.3	74.0	42.3	71.0	27.8	55.0	24.8	52.0	20.1
200.0	27.5	26.8	39.8	69.0	37.8	66.0	21.8	49.0	18.8	46.0	18.0
250.0	31.0	30.4	38.3	68.0	36.3	65.0	19.8	47.0	16.8	44.0	17.3
300.0	34.2	33.6	37.1	65.0	35.1	64.0	18.3	45.0	15.3	42.0	16.8
400.0	40.0	39.2	35.3	63.0	33.3	61.0	15.8	43.0	12.8	40.0	15.9
500.0	45.3	44.3	33.8	61.0	31.8	60.0	13.8	41.0	10.8	38.0	15.2

### Reference for this product line :

Description	References
Cable Cat. 6A F/UTP PVC, AWG 23, 5.7 mm	AD-C4C6AFUPVC
Cable Cat. 6A F/UTP LSZH, AWG 23, 5.7 mm	AD-C4C6AFULSZH