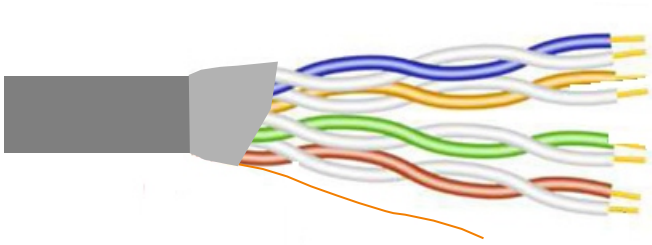
CATALOG CARD

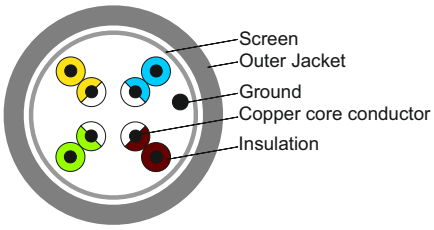
Model

5 901721 544239

F/UTP LAN cat.5e 305m



(PVC) (Al) (PE) (FeCu) (Cu)



APPLICABLE STANDARDS

1.ISO/IEC 11801:2010. Information technology. Generic cabling for customer premises.
2.PN-EN 50173-1:2011. Information technology – Structured cabling systems,
– Part 1: general requirements (*implement norm EN 50173-1:2011*).
3.IEC 61156-5:2002. Multicore and symmetrical pair/quad cables for digital communications
– Part 5-2: Symmetrical pair/quad cables with transmission characteristics up to 600 MHz
– Horizontal floor wiring – Capability Approval – Sectional specification.
4.TIA/EIA-568-B.2:2001. Commercial Building Telecommunications Cabling Standard. Part 2: Balanced Twisted-Pair. Cabling Components.
5.TIA/EIA-568-C.2:2009. Balanced Twisted Pair. Telecommunications Cabling and Components Standard.
6.PN-EN 50289-1-2:2007. Telecommunications cables – test methods – Part 1-2: Methods of testing electrical properties – DC resistance.
7.PN-EN 50289-1-3:2007. Telecommunications cables – test methods – Part 1-3: Methods of testing electrical properties – electric endurance.
8.PN-EN 50289-1-4:2007. Telecommunications cables – test methods – Part 1-4: Methods of testing electrical properties – Insulation resistance.
9.PN-EN 50289-1-5:2008. Telecommunications cables – test methods – Part 1-5: Methods of testing electrical properties – Capacity.
10.PN-EN 50289-1-8:2010. Telecommunications cables – test methods – Part 1-8: Methods of testing electrical properties – Attenuation.
11.PN-EN 50289-1-10:2002.Telecommunications cables – test methods – Part 1-10: Methods of testing electrical properties – Perspicacity.
12.PN-EN 50289-1-11:2002. Telecommunications cables – test methods – Part 1-11: Methods of testing electrical properties – Wave impedance, Input impedance, return loss.
13.EN 50575:2014, EN 13501-6:2014 CPR directive (CE)
14.Directive 2011/65/EU with an annex II 2015/863 (RoHS 3)

TECHNICAL DATA

Type: F/UTP
Category: 5e
Internal conductor: 100% CU, four pairs twisted asymmetrically
Screen: aluminum with a thickness of 0.04 mm (AL.)
Grounding: steel-copper plated with a diameter of 0,50 mm (FeCu)
Wires insulation: HDPE polyethylene (PE)
Outer sheath: PVC, Gray color
Outside diameter: Ø 6.0 ± 0.02 mm
Flammability class: Eca
Working temperature: -20 oC ÷ +70 oC
Laying temperature: 0 oC ÷ +70 oC
Purpose: Inside buildings
Compliance with standards: ISO/IEC 11801:2010, EN 13501-6:2014 (CPR), EN 50173-1:2011, EN 50575:2014, IEC 61156-5:2002 oraz TIA/EIA 568-B.2:2001
Length: 305 m.
Brand: CONOTECH

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Model

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F/UTP LAN cat.5e 305m

ELECTRICAL DATA

Conductor resistance [Ω/km] : ≤ 150
Conductor resistance asymmetry [%] : ≤ 3,0
Effective capacity [nF/km] : 50 ± 2
Capacitance asymmetry [pF/km] : ≤ 1600
Conductor insulation resistance [Ω/km] : ≥ 150
Insulation resistance to test voltage (DC, 1min.) [V/AC] : 1000
Effective attenuation by f=125 MHz [dB] : ≤ 24,9
Near-pass loss (NEXT) by f=125 MHz [dB] : ≥ 34,0
Total Near-pass loss (PS NEXT) przy f=125 MH [dB] : ≥ 31,0
Return loss (RL) by f=125 MHz [dB] : ≥ 19,4

PRODUCT DESCRIPTION

High-quality network cable, shielded F/UTP LAN category 5e, consists of four pairs of asymmetrically twisted wires made of pure copper. The conductors insulation are made of HDPE polyethylene, which is characterized by high density and particularly high dielectric insulation. The cable has an aluminum screen and a steel/copper-plated ground, which increases the insensitivity to electromagnetic interference in signal transmission. The outer sheath is made of gray PVC with an outer diameter of Ø 6.00 ± 0.02 mm, which protects against mechanical damage. The 305 m long twisted-pair cable is packed in an Easy Pull Box carton, which enables fast cable laying. The cable are intended for permanent installation inside the bulidings and industrial networks:
- Accordance with CPR (CE)
- Norms: EN 50575:2014
- Reaction to fire: ECA
- Certificated by Institute of Communication.

IMPLEMENTATION

Twisted-pair cable enables data transmission in both analog and digital form. It is used to create wired connections in ICT installations. The cable is used for permanent installation in the structured cabling of buildings, as well as in industrial networks exposed to the influence of external electromagnetic interference. Its functional properties ensure simple and comfortable locating inside buildings, bearing in mind the safety of the installation.

MEASUREMENT

Graph 1: Cat.5e cables resistance of pairs of conductors and asymmetry of resistance measurement results.

Cable model	Track	Wire	Conductor resistance [Ω/km]	Resistance asymmetry [%]
FTP cat.5e	1	a	81,460	0,18
		b	81,606	
	2	a	83,911	0,20
		b	84,075	
	3	a	85,503	0,87
		b	84,762	
	4	a	80,862	1,62
		b	81,885	
Requirements	-	-	≤ 150	≤ 3,0

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Graph 2: Cat.5e cable effective capacitance and capacitance asymmetry measurements results.

Cable model	Track	Effective capacity [nF/km]	Capacitance asymmetry [pF/km]
FTP cat.5e	1	49,058	217
	2	50,611	643
	3	50,023	1534
	4	48,389	282
Requirements	-	-	≤ 1600

Graph 3: Cat.5e cable insulation resistance measurement results.

Cable model	Track	Wire	Insulation resistance [Ω/km]
FTP cat.5e	1	a	$6{,}5 \cdot 10^5$
		b	$4{,}0 \cdot 10^5$
	2	a	$6{,}5 \cdot 10^5$
		b	$4{,}5 \cdot 10^5$
	3	a	$7{,}5 \cdot 10^4$
		b	$5{,}5 \cdot 10^5$
	4	a	$8{,}0 \cdot 10^4$
		b	$6{,}0 \cdot 10^5$
Requirements	-	-	≥ 150

Graph 4: Cat.5e cable effective attenuation measurements results at the frequency of f = 125 MHz

Cable model	Track	Effective attenuation [dB]
FTP cat.5e	1	24,70
	2	23,90
	3	24,50
	4	24,20
Requirements	-	≤ 24,9

Graph 5: Cat.5e cable near-pass loss (NEXT) measurements results at the frequency f = 125 MHz

Cable model	Track	Near-pass loss (NEXT) [dB]
FTP cat.5e	1-2	51,20
	1-3	49,90
	1-4	50,40
	2-3	60,00
	2-4	59,20
	3-4	48,50
Requirements	-	≥ 34,0

Graph 6: Cat.5e cable total near-pass loss (PS NEXT) measurements results at the frequency f = 125 MHz

Cable model	Track	Total near-pass loss (PS NEXT) [dB]
FTP cat.5e	1	45,70
	2	50,08
	3	42,95
	4	46,11
Requirements	-	≥ 31,0

Graph 7: Cat.5e cable return loss (RL) measurements results at the frequency f = 125 MHz

Cable model	Track	Return loss (RL) [dB]
FTP cat.5e	1	21,10
	2	20,80
	3	19,90
	4	20,30
Requirements	-	≥ 19,4

TEST EQUIPMENT

1. Universal meter U1242A
2. Digital voltmeter V-541
3. Megohmmeter HP4339B Helwett Packard
4. Fluke multimeter RLC PM 6304
5. Network analyzer 8753C Agilent
6. Balance transfomer 3P 50/100Ω 3P
7. Puncture tester TP5S P.A.I.P.
8. Temperature and humidity meter - HMI 41

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