

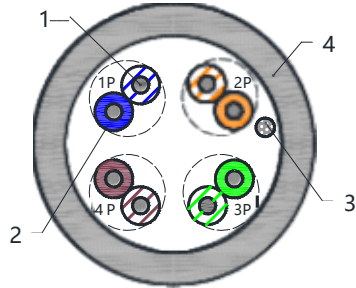
Cable Specification

Product Name: Cat 5e U/UTP 4 X2 X2 4 AWG

S/N: ITI CABLE-040

Date: 08/08/2023

Schema



Product Description

①	Inner Conductor
②	Insulation
③	Ripcord
④	Jacket

Construction Item Description

Conductor	Construction	AWG	24 AWG
	Material	/	Bare Solid Copper
Insulation	Material	/	HDPE
	Outside Diameter	mm	0.85 ± 0.05
	Average Thickness	mm	0.195± 0.05
	Color	/	1p: blue stripe + white + blue stripe & blue
			2p: orange stripe + white + orange stripe & orange
			3p: green stripe + white + green stripe & green
			4p: brown stripe + white + brown stripe & brown
Pair Twist	Lay & Direction	/	1p: S=20.0 mm (28%)
			2p: S=17.5 mm (24%)
			3p: S=22.0 mm (32%)
			4p: S=15.5 mm (21%)
Inner Assemble	Lay & Direction	/	S=90 ± 5 mm
Filler	Ripcord	/	250D*3
	Material	/	Polyester
Outside Shield	Shield	/	/
	Construction	mm	/
	Material	/	/
	Coverage	%	/
Jacket	Material	/	LSOH
	Hardness	A	81 ± 3
	Outside Diameter	mm	5.0 ± 0.2
	Average Thickness	mm	0.45 ~ 0.55
	Color	/	according to the customer's requirements
	Marking Color	/	according to the customer's requirements
Marking	Jacket	/	according to the customer's requirements

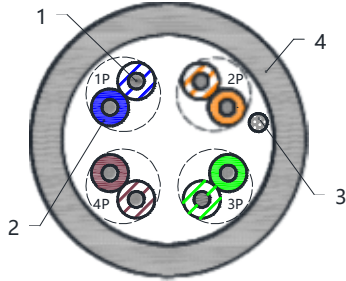
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Schema



Product Description

①	Inner Conductor	Composition : Solid Bare Copper (BC)
		Diameter : See table below
②	Insulation	Composition : HDPE
		Diameter : See table below
③	Filler	Type of filler : Ripcord
		Composition : Polyester
④	Jacket	Composition : LSOH
		Dimensions : See table below
		color : according to the the customer's requirements

Dimensional Table

Nb pairs	Section	Diameter of	Diameter of insulated conductor (mm)	Minimal thickness of jacket (mm)	Diameter of outer jacket (mm)
	(AWG)	inner conductor (mm)			
4	24	NA	0.85 ± 0.05	0.45 ~ 0.55	5.0 ± 0.2

Diameters of inner conductor and insulated conductor must be designed in order to reach the electrical and transmission properties of CAT5e.

Color Table

Pair No.	Conductor 1	Conductor 2
1	blue stripe + white + blue stripe	Blue
2	orange stripe + white + orange stripe	Orange
3	green stripe + white + green stripe	Green
4	brown stripe + white + brown stripe	Brown

Reference Standard

Materials		Fire performance	Electrical performance	Low	Zero Halogen (ZH)		Reach regulation	RoHs Directive
				Smoke Density during combustion	Amount of Halogen acid gas during combustion	Degree of acidity (corrosivity) of gases for materials during combustion		
Insulation	Jacket							
EN 50290-2-23 UL444	EN 50290-2-27 UL444	EN60332-1-2 GB/T 18380.12	ANSI/TIA-568.2-D ISO/IEC 1 1801 IEC 61156-5 EN 50173	NA	NA	NA	NA	NA

Mechanical Properties

Test Method	According to		
	In Standard	NF EN 60811-1-1 (IEC 60811-501)	
	$L_0=200mm$, speed =100mm/min	$L_0=20mm$, speed =250mm/min (or 25mm/min for PE&PP insulation)	
	INNER CONDUCTOR	INSULATION	JACKET
Tensile Strength (MPa)	-	≥ 16 MPa	≥ 10.0 MPa
Elongation (%)	9%~24%	≥ 300%	≥ 125 %

Thermal Properties

Operating Temperature Range (°C)	-20°C to +75°C (static)
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Electrical Properties

Conductor Resistance at 20°C	NF EN 50289-1-2 / IEC 60189-1	≤ 9.5 Ω / 100m
Resistance unbalance within a pair	NF EN 50289- 1-2/ IEC 60708	≤ 2%
Dielectric Strength Test Voltage (cd/cd): 1.00KV DC or 0. 7 KV AC for 1 min Test Voltage (cd/screen): 1.00KV DC or 0. 7 KV AC for 1 min	NF EN 50289-1-3 / IEC 61196-1-105	No breakdown
Insulation Resistance at 20°C after 2min of electrification under a DC voltage between 100 & 500V	NF EN 50289-1-4 / IEC 60885-1	>1500 MΩ / 100m
Mutual capacitance	NF EN 50289- 1-5 /IEC 60189- 1	5600pF / 100m MAX
Capacitance unbalance pair to ground at 800Hz or 1 kHz	NF EN 50289- 1-5 / IEC 60189- 1	≤ 160 pF / 100m
Characteristic impedance at 100MHz	NF EN 50289- 1- 11/ IEC 61156- 1	100 ± 15 Ω
Spark Test	UL444	2000 ± 250VOC

Transmission Properties

ANSI/TIA-568.2-D ISO/IEC 1 1801/IEC 61156-5/EN 50173

No.	Frequency	Attenuation (Max)	Propagation Delay (MAX)	Propagation Delay Skew (MAX)	Return Loss (Min)	NEXT (Min)	PS NEXT (Min)	EL-FEXT (Min)	PS EL-FEXT (Min)
	MHz	dB/100m	ns/100m	ns/100m	dB(on 100m)	dB(on 100m)	dB(on 100m)	dB(on 100m)	dB(on 100m)
1	4	4.05	552	45	23.01	56.27	53.27	51.96	48.96
2	8	5.77	546.73	45	24.52	51.75	48.75	45.94	42.94
3	10	6.47	545.38	45	25	50.3	47.3	44	41
4	16	8.25	543	45	25	47.24	44.24	39.92	36.92
5	20	9.27	542.05	45	25	45.78	42.78	37.98	34.98
6	25	10.42	541.2	45	24.32	44.33	41.33	36.04	33.04
7	31.25	11.72	540.44	45	23.64	42.88	39.88	34.1	31.1
8	50	15.07	539.09	45	22.21	39.82	36.82	30.02	27.02
9	62.5	16.99	538.55	45	21.54	38.36	35.36	28.08	25.08
10	100	21.98	537.6	45	20.11	35.3	32.3	24	21
11	/	/	/	/	/	/	/	/	/
12	/	/	/	/	/	/	/	/	/
13	/	/	/	/	/	/	/	/	/
14	/	/	/	/	/	/	/	/	/

Remarks: * are the reference values

Application

The cable must support class E applications and must be compatible POE, POE+ and UPOE.

Marking

Type	ink
Color	According to the customer's requirements
Text	According to the customer's requirements

Packing

Type of Packing	Dimension (mm)	Qt of per Packing (m)	Label Type	Cut Allowed	Tolerance Length (%)
Inner Box	according to the customer's requirements	305	according to the customer's requirements...	No	0
Master Carton	according to the customer's requirements	305	according to the customer's requirements...	No	0

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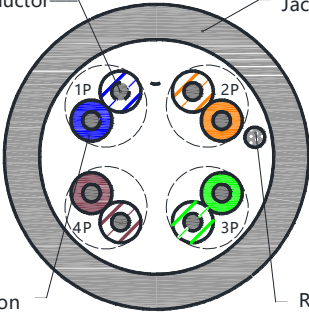
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Product Design Card

Product Description : Cat 5e U/UTP 4 X 2 X 24AWG

Rev. : A

ECN Description :

Construction Item Description			Electrical Property			
Conductor	Material	Bare Solid Copper (elongation:19~24%)	Conductor Resistance at 20 °C		≤9.5 Ω/100m	
	OD	24 AWG	Resistance unbalance within a pair		≤ 2%	
Insulation	Material	HDPE	Insulation Resistance at 20 °C after 2 min of electrification under a DC voltage between 100 & 500V		> 1500 MΩ / 100m	
	OD	0.85 ± 0.05 mm	Mutual capacitance		5600 pF / 100m MAX	
	Average THK	0.19 mm± 0.05 mm	Capacitance unbalance pair to ground at 800Hz or 1 kHz		≤ 160 pF / 100m	
	Color	1p: white + 2 blue stripes & blue	Characteristic impedance at 100 MHz		100 ± 15 Ω	
		2p: white + 2 orange stripes & orange	Dielectric Strength Test Voltage (cd/cd,cd/screen): 1.00KV DC or 0.7 KV AC for 1 min		No breakdown	
		3p: white + 2 green stripes & green	Mechanical Property			
		4p: white + 2 brown stripes & brown				
Pair Twist	Lay & Direction	1p: S=20.0 mm (28%)	insulation	elongation before aging		≥ 300%
		2p: S=17 .5 mm (24%))		tensile strength before aging		≥16 MPa
		3p: S=22 .0 mm (32%)				
		4p: S=15 .5 mm (21%)	jacket	elongation before aging		≥ 150 %
OD	/	tensile strength before aging		≥ 13.5 MPa		
Inner Assemble	Lay	S=90 ± 5mm		elongation after aging		≥ 125 %
	Direction	according to the drawing		tensile strength after aging		≥ 12.5 MPa
	Filler	/	Packing			
	OD	/				
Filler	Ripcord	250D*3	Inner Box		according to the customer's requirements	
	Material	Polyester	Master Carton		according to the customer's requirements	
Outside Shield	Shield	/	Inner Conductor Jacket Insulation Ripcord  			
	Construction	/				
	Material	/				
	Coverage	/				
Jacket	Material	LSOH				
	Hardness	81 ± 3				
	OD	5.0± 0.2				
	Average THK	0.45 ~ 0.55				
	Color	according to the customer's requirements				
Marking	Marking Color	according to the customer's requirements				
		according to the customer's requirements...				