

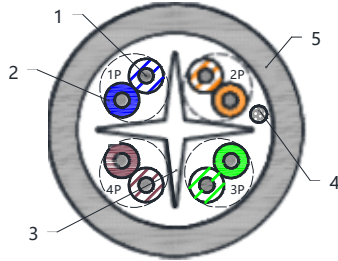
# Cable Specification

**Product Name: Cat 6 U/UTP 4X2X24 AWG**

S/N: ITI CABLE-045

Date: 08/08/2023

## Schema



## Product Description

<b>①</b>	<b>Inner Conductor</b>
<b>②</b>	<b>Insulation</b>
<b>③</b>	<b>Cross Member</b>
<b>④</b>	<b>Ripcord</b>
<b>⑤</b>	<b>Jacket</b>

## Construction Item Description

Item	Property	Unit	Value
Conductor	Construction	AWG	24AWG
	Material	/	Bare Solid Copper
Insulation	Material	/	HDPE
	Outside Diameter	mm	0.89±0.05
	Average Thickness	mm	0.20±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=11.5 mm (26%)
			2p: S=15.5 mm (21%)
			3p: S=10.5 mm (30%)
			4p: S=17.0 mm (19%)
Inner Assemble	Lay & Direction	/	S=90 ± 5 mm
	Cross Member	mm	cross member 4.0X4.0X0.4mmT
	Material		LDPE
	Ripcord	/	3*250D
	Material		Polyester
Outside Shield	Shield	/	/
	Construction	mm	/
	Material	/	/
	Coverage	%	/
Jacket	Material	/	LSOH
	Hardness	A	81± 3
	Outside Diameter	mm	5.7 ± 0.2
	Average Thickness	mm	0.55 ~ 0.60
	Color	/	according to the customer's requirements
	Marking Color	/	according to the customer's requirements
Marking	Jacket	/	according to the customer's requirements

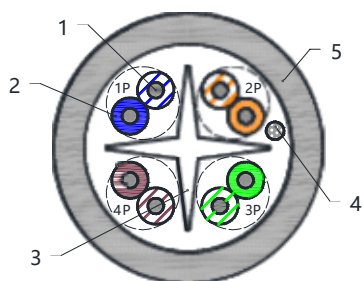
# Cable Specification

**Product Name: Cat 6 U/UTP 4X2X24AWG**

S/N: ITI CABLE-044

Date: 08/08/2023

## Schema



## Product Description

<b>1 Inner Conductor</b>	Composition : Solid Bare Copper (BC)
	Diameter : See table below
<b>2 Insulation</b>	Composition : HDPE
	Diameter : See table below
<b>3 Filler</b>	Type of filler : Cross-Member
	Composition : Low-Density Polyethylene (LDPE)
<b>4 Filler</b>	Type of filler : Ripcord
	Composition : Polyester
<b>5 Jacket</b>	Composition : LSOH
	Dimensions : See table below
	color : according to 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	0.89± 0.05	0.55~ 0.60	5.7 ± 0.2

Diameters of inner conductor and insulated conductor must be designed in order to reach the electrical and transmission properties of CAT6.

## 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
Insulation	Jacket			Smoke Density during combustion	Amount of Halogen acid gas during combustion	Degree of acidity (corrosivity) of gases for materials during combustion		
EN 50290-2-23 UL444	EN 50290-2-27 UL444	EN60332-1-2 GB/T18380.12	ANSI/TIA-568.2-D ISO/IEC 11801 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)	
	<i>L<sub>0</sub></i> = 200mm, speed = 100mm/min	<i>L<sub>0</sub></i> = 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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# Cable Specification

**Product Name: Cat 6 U/UTP 4X2X24AWG**

S/N: ITI CABLE-044

Date: 08/08/2023

## 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 <i>Test Voltage (cd/cd): 1.00KV DC or 0. 7 KV AC for 1 min</i> <i>Test Voltage (cd/screen): 1.00KV DC or 0. 7 KV AC for 1 min</i>	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 100 MHz	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	3.78	552	45	23.01	66.27	63.27	55.96	52.96
2	8	5.32	546.73	45	24.52	61.75	58.75	49.94	46.94
3	10	5.95	545.38	45	25	60.3	57.3	48	45
4	16	7.55	543	45	25	57.24	54.24	43.92	40.92
5	20	8.47	542.05	45	25	55.78	52.78	41.98	38.98
6	25	9.51	541.2	45	24.32	54.33	51.33	40.04	37.04
7	31.25	10.67	540.44	45	23.64	52.88	49.88	38. 1	35. 1
8	50	13.66	539.09	45	22.21	49.82	46.82	34.02	31.02
9	62.5	15.38	538.55	45	21.54	48.36	45.36	32.08	29.08
10	100	19.8	537.6	45	20. 11	45.3	42.3	28	25
11	125	22.36	537.22	45	19.43	43.85	40.85	26.06	23.06
12	200	28.98	536.55	45	18	40.78	37.78	21.98	18.98
13	250	32.85	536.28	45	17.32	39.33	36.33	20.04	17.04
14	350 *	39.8	/	45	16.3	36. 1	34. 1	16.9	13.9
15	400 *	43	/	45	15.9	35.3	33.7	15.7	12.7
16	450 *	46.3	/	45	15.5	34.5	32.5	14.7	11.7
17	500 *	48.9	/	45	15.2	33.8	31.8	13.8	10.8
18	550 *	51.8	/	45	14.9	33.2	31.2	12.9	9.9

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	According to the customer's requirements	According to the customer's requirements	No	±0.5
Master Carton	According to the customer's requirements	According to the customer's requirements	According to the customer's requirements	No	-----

# Cable Specification

**Product Name: Cat 6 U/UTP 4X2X24AWG**

S/N: ITI CABLE-044

Date: 08/08/2023

## Product Design Card

Product Description : **Cat 6 U/UTP 4X2X24AWG**

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	0.89 ± 0.05 mm	Mutual capacitance	5600 pF / 100m MAX	
	Average THK	0.20 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	<b>Mechanical Property</b>				
Pair Twist	Lay & Direction	1p: S=11.5 mm (26%)	insulation	elongation before aging	≥ 300%
		2p: S=15.5 mm (21%)		tensile strength before aging	≥16 MPa
		3p: S=10.5 mm (30%)	jacket	elongation before aging	≥ 125 %
		4p: S=17.0 mm ( 19%)		tensile strength before aging	≥ 10. MPa
OD	/	elongation after aging	≥ 100 %		
Inner Assemble	Lay	S=90±5 mm	tensile strength after aging	≥ 8MPa	
	Direction	according to the drawing	<b>Packing</b>		
	Filler	cross member 4.0X4.0X0.4mmT	Inner Box	According to the customer's requirements	
	OD	/	Master Carton	According to the customer's requirements	
Filler	Ripcord	250D*3			
	Material	Polyester			
Outside Shield	Shield	/			
	Construction	/			
	Material	/			
	Coverage	/			
Jacket	Material	LSOH			
	Hardness	81± 3			
	OD	5.7± 0.2			
	Average THK	0.55~0.60			
	Color	according to the customer's requirements			
Marking Color	according to the customer's requirements				
Marking	according to the customer's requirements...				