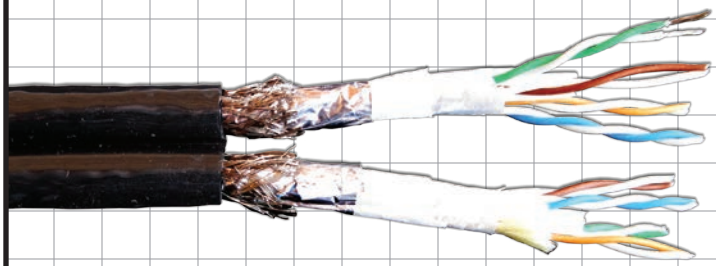
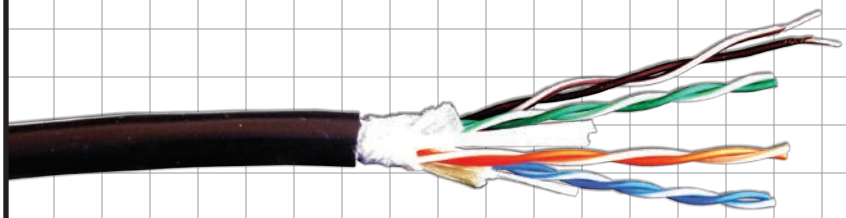
ProPlex™ ETHERNET CABLES

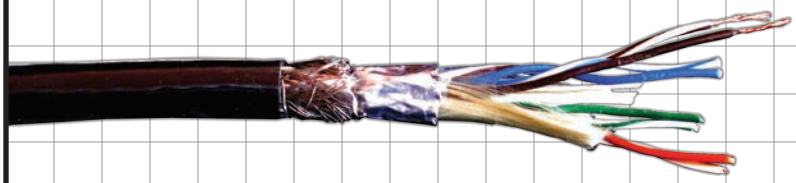
PCCAT5EP
CAT5e SF/UTP Ethernet Patch Cable



PCCAT5EP2X
Dual CAT5e SF/UTP Figure Eight Cable



PCCAT5EUTPP
CAT5e Ultra-Patch U/UTP Ethernet Cable



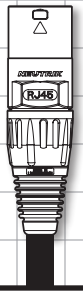
PCCAT5EP26AWG
CAT5e 26AWG SF/UTP Ethernet Cable

THE WORLD'S MOST DURABLE ETHERNET CABLES

Finally! Ethernet patch cables designed to withstand the extreme conditions of the real world. Available as fully assembled patch cables, in standard and custom lengths, with your choice of three heavy-duty RJ-45 connector formats. Panel-mount connectors also available for a complete OEM Ethernet wiring solution.

Shielded RJ-45 with heavy-duty boot

ProShell™
Durable RJ-45 Backshell



EtherCon™
NEUTRIK
CONNECTING THE WORLD

RoHS
Compliant

General Information

PCCAT5EP CAT5E SF/UTP ETHERNET PATCH CABLE	A 4 pair, 24 AWG, 100 Ohm SF/UTP round patch cable, designed to the ISO / IEC 11801 Category 5e requirements. The cable contains 4 twisted pairs, cabled, double shielded with kevlar reinforcement strands, jacketed in black UV resistant Polyurethane. Designed for fixed or portable applications in harsh environments.
PCCAT5EP2X CAT5E SF/UTP FIGURE EIGHT CABLE	Two PCCAT5EP cables extruded together like a zip cord. Eliminates the need for banding two ethernet cables together.
PCCAT5EUTPP CAT5E ULTRA-PATCH U/UTP ETHERNET CABLE	A 4 pair, 24 AWG, 100 Ohm U/UTP round cable, designed to the IEC 61156-6 and TIA/EIA 568-B.2 CAT5 requirements. The cable contains 4 twisted pairs, cabled, assembled with kevlar reinforcement strands, jacketed in Black UV resistant Polyurethane.
PCCAT5E26AWG CAT5E 26AWG SF/UTP ETHERNET CABLE	A 4 pair, 26 AWG, 100 Ohm SF/UTP patch cable, designed to the ISO / IEC 11801 Category 5e requirements. The cable contains 4 twisted pairs, cabled together with Aramid reinforcing members, wrapped with non-woven tape, and overall shielded with copper braid and aluminum foil in SF/UTP structure. The SF/UTP core is jacketed with industrial grade compound jacket.

General Specifications

	PCCAT5EP	PCCAT5EP2X	PCCAT5EUTPP	PCCAT5E26AWG
Conductors	24 AWG [0.25 mm^2] tinned copper, 7x0.20 mm		24 AWG [0.25 mm^2] tinned copper, 7x0.20 mm	26/7 AWG 7x0.16 mm stranded bare copper
Insulation	Linear Low Density Polyethylene, Nom. Dia. 0.039" [1 mm]		Solid PO, Nom. Nom. Dia. 0.038" [0.97 mm]	PO (Polyolefin compound). Nom. Dia. 0.035" [0.9 mm]
Color Code	Color coded 568-B			White/Blue X Blue; White/Orange X Orange; White/Green X Green; White/Brown X Brown.
Assembly	Pairs cabled with Kevlar strength members and separation tape wrapped.			
Shields	Inner: Aluminum mylar 100% coverage. Outer: tinned copper braid, 80%		None	Inner: Aluminum-polyester tape 115% coverage. Outer: Tinned copper braid, coverage 80% nom.
Jacket	Black, special PUR compound.			Black, PU compound
Marking	ProPlex PCCAT5EP 24AWG shielded 100MHz Data Cable Cat5e verified	PROPLEX PCCAT5EP2X 24AWG SHIELDED 100MHZ DATA CABLE CAT5E VERIFIED	ProPlex PCAT5EUTPP 24AWG UTP 100MHZ data cable CAT5E verified	ProPlex PCCAT5EP26AWG Shielded 100 MHz CAT5e Patch Cable [lot/mtrs]
Weight	40 lbs. / mft [59 Kg/Km]	73.9 lbs. / mft [110 Kg/Km]	30 lbs. / mft [44 Kg/Km]	38.5 lbs. / mft [57 Kg/Km]
Outside Diameter	0.28" [7.1 mm] +/-0.012" [0.3 mm]	0.53" x 0.26" [13.5 x 6.5 mm] +/- 0.015" [0.4 mm]	0.244" [6.2 mm] nom. +/-0.012" [0.3 mm]	0.27" [6.9 mm] +/- 0.012" [0.3 mm]
Minimum Bend Radius	Installation: 67.5 mm [9 x O.D.] Operational: 37.5 mm [5 x O.D.]	45 mm		30 mm
Flex Rating	≥ 1 million flexes, assuming bend radii of approximately 40 mm, flex rate 20 bends/min.			
Minimum Flexes to Failure	Passes IEC 61156-6 requirements.			
Torsion	Tested to ± 180°			
Drag Chain	May be used in drag chain (cable carrier) applications. User should take care about surface contact to other cables with different jacket materials.			
Temperature Rating	Installation: -5 to +60° C Operational: -40 to +70° C		Installation: -5° to +60° C Operational: -25° to +70°C	Operational: -35° to +70°C
Compliance	RoHS			IEC 60332-1, IEC 61156, ISO/IEC 11801, RoHS 2002/95/EC, IEC 61034, EN 50173, EN 60754-2, EN 50267-2-3 and TIA/EIA 568A Cat. 5e.

Electrical Specifications

	PCCAT5EP	PCCAT5EP2X	PCCAT5EUTPP	PCCAT5E26AWG
Voltage Rating	230 VMS			
Spark Test	3 KV (tested during production)			
Velocity of Propagation	67% nom.		68% nom.	69% nom.
Impedance	100 +/- 15 Ohm 1-100 MHz		100 +/- 15 Ohm 1-100 MHz	100 +/- 15 Ohm 1-100 MHz
Propogation Delay	5.2 ns/m max. @ 100 MHz		570ns/100m max @ 1 MHz 545ns/100m max @ 10 MHz 537ns/100m max @ 100 MHz	
Delay Skew	20ns/100 m max. @ 1-100 MHz		35ns/100m max @ 1-100 MHz	
Dielectric Strength	VAC/1min - 700V/min		VAC/1min - 700V/min	700 VAC/min. between conductors 500 VAC/min. conductors to shield
Capacitance	46 pF/m nom. @1 KHz		pair 46 pF/m	
LCL	43 dB min. @ 64 KHz			
Resistance Unbalance	3% max @ 20 deg. C		2% max @ 20 deg. C	2% max @ 20 deg. C
Capacitance Unbalance	3.4 pF/m max. @1KHz (wire to ground)		3.2 pF/m max. @1KHz (wire to ground)	1.5 pF/m max.
Insulation Resistance	150 M Ohm Min.		5000 M Ohm / Km Min.	
Return Loss (100MHz)	23 db/100m min @ 1-20 MHz		20 db/100 m min. @ 1 MHz 25 db/100 m min. @ 16 MHz 20.7 db/100 m min. @ 62.5 MHz 19 db/100 m min. @ 100 MHz	
DC Resistance	96 Ohm/Km @ 20 deg. C		96 Ohm/Km @ 20 deg. C	140 Ohm/Km max.
ACR				57.2 dB @ 10 MHz 54.9 dB @ 16 MHz 42.6 dB @ 62.5 MHz 40.1 dB @ 100 MHz
Typical channel length				35 m (@20° C), when used with certified termination connectors

Attenuation db/100m nom.

	772 KHz	1 MHz	4 MHz	10 MHz	16 MHz	20 MHz	31.25 MHz	62.5 MHz	100 MHz
PCCAT5EP	2.7	3.15	6.45	9.9	12.3	13.8	17.7	25.6	33
PCCAT5EP2X	2.7	3.15	6.45	9.9	12.3	13.8	17.7	25.6	33
PCCAT5EUTPP		2.5	4.9	7.8	9.9	11.1	14.1	20.4	26.4
PCCAT5E26AWG				0.8	1.1			2.4	2.9

ProPlex CAT5e Ethernet cables meet attenuation specs up to 85m (275 ft); meets all other performance specs up to 100m (328 ft)

ProPlex CAT5e 26AWG Ethernet patch cables meet all CAT5e performance specs up to 10m (32 ft)

N.E.X.T (Near-End Crosstalk Loss) db min.

	772 KHz	1 MHz	4 MHz	10 MHz	16 MHz	20 MHz	31.25 MHz	62.5 MHz	100 MHz
PCCAT5EP	64	62	53	47	44	42	40	35	32
PCCAT5EP2X	64	62	53	47	44	42	40	35	32
PCCAT5EUTPP		65	56	50	47	46	43	38	35
PCCAT5E26AWG				58	56			45	43

Reeling Capability

In the core level, under the shields, are 4 pairs and 6 strength members, 3 white and 3 yellow. Two central strength members perform “tension relief” function. The other four are twisted around the pairs, each pair is wrapped in a strength member to perform “pair structure holding” function. The reason for two types of strength members; each one has a different prolongation constant, one positive, the other negative, so on average the length of the strength members is constant and equal to the wire length.

To install this cable for reeling purposes the following guidelines are stated.

- Minimum reel core diameter is 10 cm.
- Minimum tension used during reeling and un-reeling process.
- Terminate the cable with plugs before reeling initiated.
- Cable length per reel is less than 90 meter.

PUR Jacket Properties

Jacket Compound Specification

Halogen Free Flame Retardant Polyether-based Polyurethane, Glossy finish. Excellent Hydrolysis resistance. High microbial resistance. UV resistant. High flexibility.

Jacket Testing Results

Test	Test Method	Result
Density	DIN 53479	1.15g/cubic cm
Tensile strength	DIN 53504	40 nom. N/sqmm
Tensile strength after 42 days, H20 80°C	DIN 53504	30 N/sqmm
Ultimate elongation	DIN 53504	550 nom. % min.
20% modulus	DIN 53504	3.2 N/sqmm
100% modulus	DIN 53504	5.5 N/sqmm
300% modulus	DIN 53504	12 N/sqmm
Tear strength	DIN 53515	60 N/mm
Hardness shore A	DIN 53505	87
Hardness shore D	DIN 53505	36
Melt index- MVR	ISO 1133	30-60 cubic cm/10 min
Brittle point	DIN 53513	minus 45°C
Abrasion Loss	DIN 53516	40 cubic mm
Compresion set (23°C) 70h	DIN 53517	30%
Compresion set (70°C) 24h	DIN 53517	50%

PUR Jacket Chemical Resistance Chart

Key:

Nil: Resistance over a prolonged period.

Nil to slight: After a certain time appreciable differences are noticible.

Slight: Conditionally resistant.

Poor: Short term contact possible under certain conditions.

No resistance: Pronounced attack

Organic Substances

Medium	Temperature	Concentration	Reaction
Acetic Acid	Room Temp	20%	slight
Acetone	Room Temp	40%	poor
Astm Fuel A	Room Temp	4%	nil
Astm Fuel B	Room Temp	10%	nil
Astm Fuel C	Room Temp	18%	nil to slight
Astm Oil 1	80°C		nil
Astm Oil 2	80°C	3%	nil
Astm Oil 3	80°C	6%	nil
Benzene	Room Temp		poor
Butanol	Room Temp		poor
Butyle Acetate	Room Temp	40%	poor
Citric Acid	Room Temp		slight
Cutting Oil	Room Temp		nil to slight
Cyclohexanol	Room Temp	5%	slight
Dibutylphthalate	Room Temp	40%	slight
Diesel Oil	Room Temp		nil to slight
Diesel Oil	Room Temp	5%	nil
Diethylether	Room Temp		nil to slight
Diethylprestone	Room Temp		nil to slight
Dimethylformamide	Room Temp		soluable
Ethyl Alcohol	Room Temp	100%	slight
Ethylacetate	Room Temp	40%	poor
Ethylether	Room Temp		slight
Glycerin	Room Temp		nil
Glycol	Room Temp	2%	nil
Glysantin / Water 1:1	Room Temp		slight
Glysantin / Water 1:1	80°C		slight
Hydraulic Oil	Room Temp		slight
Isopropanol	Room Temp	12%	slight
Isopropyl Alcohol	Room Temp	100%	slight
Kerosine	Room Temp	3%	nil
Machine Oil	Room Temp		nil to slight
Methanol	Room Temp	10%	slight
Methyl Alcohol	Room Temp	100%	slight
Methylen Chloride	Room Temp		no resistance
Methylethylketone	Room Temp	45%	poor
Mineral Oil	80°C		nil
Olive Oil	Room Temp		nil
Paraffin Oil	Room Temp		nil to slight
Siccinic Acid, Aqu.	Room Temp	cold saturated	nil to slight
Vegetable Oil And Fats	Room Temp		nil

Inorganic Substances

Medium	Temperature	Concentration	Reaction
Acetic Acid	Room Temp	20%	nil to slight
Acetic Acid 3N	Room Temp		poor
Aluminium Chloride, Aqu.	Room Temp	5%	nil
Ammonia, Aqu.	Room Temp	10%	nil
Aniline	Room Temp		no resistance
Barium Salts	Room Temp	cold saturated	nil to slight
Boric Acid	Room Temp	100%	nil to slight
Calcium Chloride	Room Temp	cold saturated	nil to slight
Calcium Nitrate	Room Temp	cold saturated	nil to slight
Chromium Salts, Aqu.	Room Temp	cold saturated	nil to slight
Copper Salts, Aqu.	Room Temp	cold saturated	nil to slight
Fe Chloride, Aqu. 5%	40°C		slight
Hydrochloric Acid 20%	Room Temp	20%	nil to slight
Hydrogen Peroxide	Room Temp	3%	nil to slight
Hydrogen Sulphide	Room Temp		nil to slight
Magnesium Salts, Aqu.	Room Temp	cold saturated	nil to slight
Mercury	Room Temp	100%	nil to slight
Mercury Salts, Aqu.	Room Temp	cold saturated	nil to slight
Nickel Salts, Aqu.	Room Temp	cold saturated	nil to slight
Nitric Acid	Room Temp	20%	no resistance
Phosphoric Acid	Room Temp	50%	nil to slight
Potassium Carbonate, Aqu. (Potash)	Room Temp		nil to slight
Potassium Chloride	Room Temp	cold saturated	nil to slight
Potassium Dichromate, Aqu.	Room Temp		slight
Potassium Iodie	Room Temp		nil to slight
Potassium Nitrate,Aqu.	Room Temp		nil to slight
Potassium Permanganate	Room Temp		nil to slight
Potassium Sulphate, Aqu.	Room Temp		nil to slight
Sea Water	Room Temp	100%	nil
Silver Salts, Aqu.	Room Temp		nil to slight
Sodium Bicarbonate, Aqu. (Soda)	Room Temp		slight
Sodium Chloride, Aqu.	Room Temp		nil to slight
Sodium Chloride Solution, Conc.	Room Temp		nil
Sodium Hydroxide Solution 1N	Room Temp		slight
Sodium Thiosulphate, Aqu.	Room Temp		nil to slight
Sulphur	Room Temp	100%	nil to slight
Sulphur Dioxide	Room Temp		slight
Sulphuric Acid 20%	Room Temp		slight
Toluene	Room Temp	35%	poor
Water	100°C		poor
Water	Room Temp		nil
Water	80°C		nil to slight

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