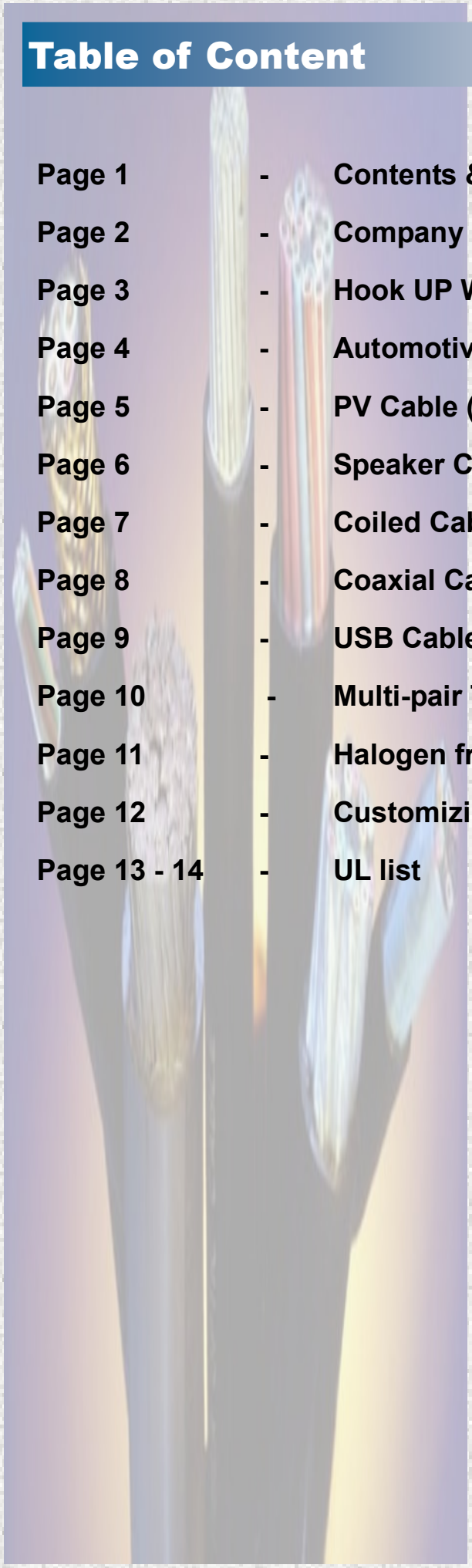
WIRE & CABLE MANUFACTURER

THERE'S NO BETTER WAY TO GET CONNECTED

Pan International Wire & Cable Sdn. Bhd. (178247-M)

Table of Content



Company Profile

Company History

The company's historic took place on 1st July 1989 with a rented plant area of 100,000 sq ft at 1016, Jalan Baru, 13700 Prai, Penang, Malaysia. In 1993, in view of the growing demand of it's products, PIW has relocated to its own factory premises on a land area of 217,800 sq ft at Seberang Jaya Industrial Estate, Penang, Malaysia.

Principle Activity and Products

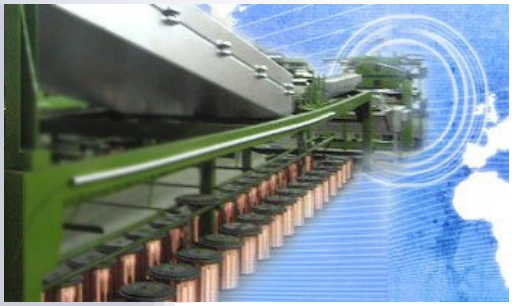
The principal activity of PIW is the manufacturing of UL/CSA Hook Up Wire, Multi-conductor Shield Cable, Coaxial Cable, Network cable, Telecommunication Cable and wide range of Computer Cable such as USB Cable and Multimedia Cable. PIW's products are widely sold to OEM Companies which are mainly local and foreign based Multinational Corporations. Our company's products are also exported either directly or indirectly through various OEM's with Licensed Manufacturing Warehouse (LMW) status to other parts of the world.

Quality Driven

PIW has been ISO 9002/1994 certified by SIRIM, Malaysia on 18th September 1996 in Quality Management System and had been upgraded to ISO 9001/2000 on 19 November 2002.

Fast and Reliable Delivery

Every purchase order is treated with urgency. Our established infrastructure ensures all delivery are either earlier or on time to our customer. Products delivered are pack in secure method of packaging approved by our professional Engineering team.



Hookup Wire

Hook-up wire is a necessity for electronic circuit prototyping, assembly, and repair jobs. This convenient package of electrical hook-up wire is ideal for improving the speed and quality of tools wire and appliances, avionics, computer and network, and applications in several environments. Hook-up wire can be used in point to point connection, wiring in panels and meter and especially equipments. Color code your electrical signals with this multi-color hook-up wire bundle. We offer Hook-up wire with tin plated conductor that can prevent copper oxidation problems and makes soldering jobs easier. The 32 gauge diameter also makes this an ideal hook-up wire for making custom circuit jumper wires. We offer insulation PVC hook-up wire with rated voltage 300 Volt and 600 Volt. Insulation material XLPE are also available.

Electrical Hook-Up Wire Specifications

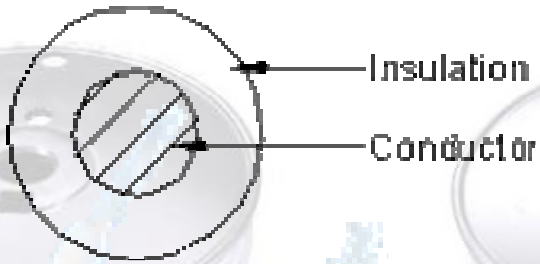
Color: white / blue / brown / green / yellow / orange / grey / violet / black / red

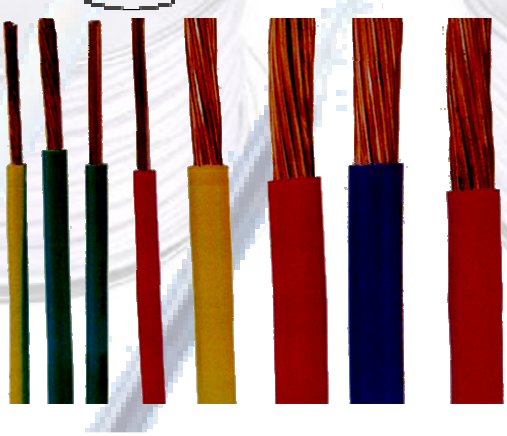
- General gauge : 10 - 32 AWG
- Rated temperature : max 125°C
- Rated voltage : 0 -1000V
- Current range : 1.0 - 55.0A
- Insulation : PVC, XL PVC, PE, XL PE
- Comply to RoHS requirement
- Passes UL VW-1 & CSA FT1 vertical flame test

Flexible Wire

Application of Flexible Wire

The V-90HT single core hook-up flexible wire is suitable to be used for installation in plants, devices, switch gear cabinets and so on, where higher temperatures occur and at working voltages up to 600/1000V. V-90HT cable is using Tinned anneal copper wire strands and heat resistant PVC (V-90HT) insulation. The UL style is accordance in UL1015 which the flame retardant in accommodation to VW-1.





Special Feature

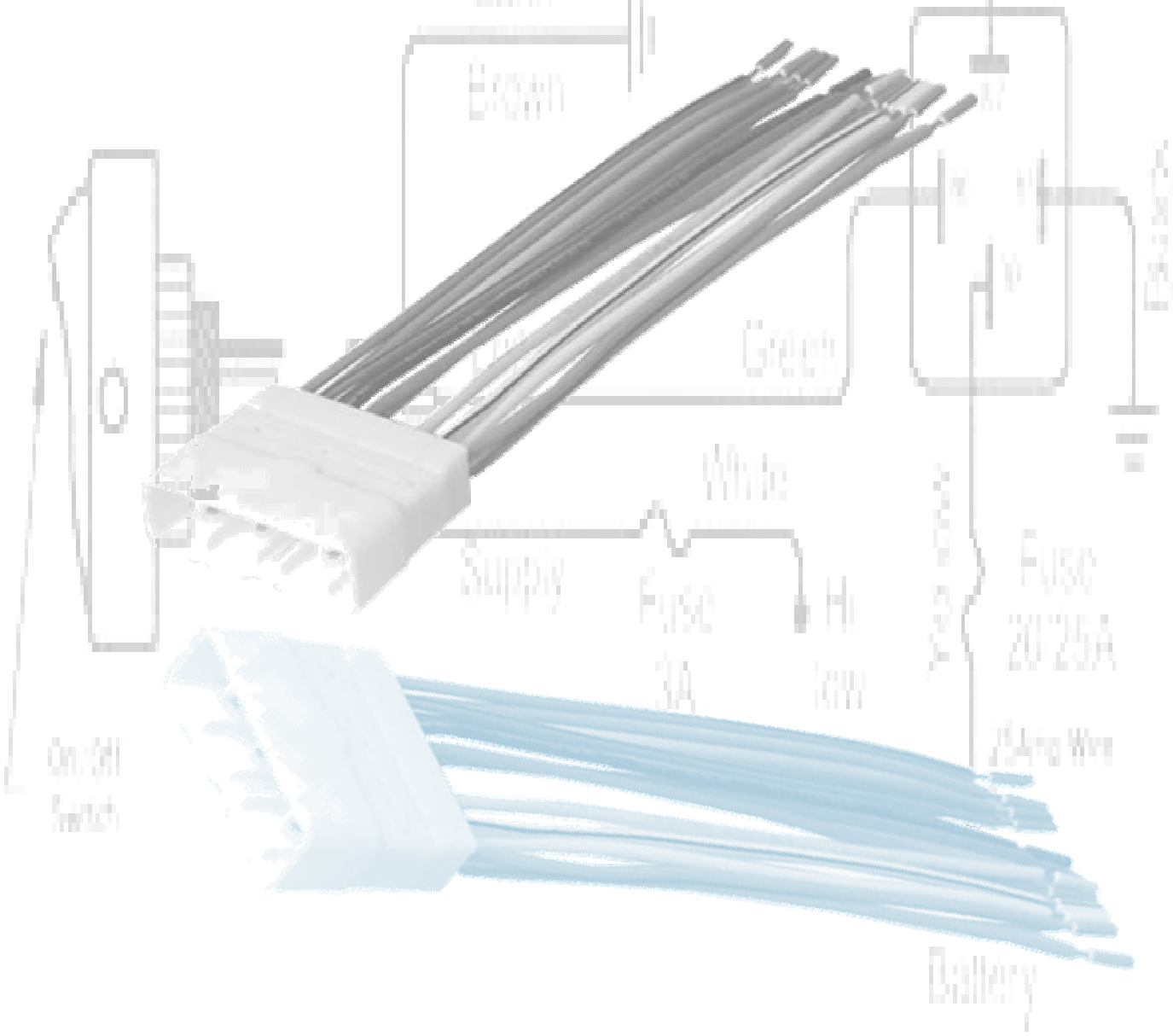
- Wide temperature range from -20˚C to 105˚C.
- Rated voltage 600/1000V
- Flame retardant to VW-1

Automotive Wire

Automotive wire is one of our main products over in the single wire series. It is applicable for primary wiring and sub-assembly of both vehicle and motorcycle.

Pan-International Wire & Cable manufacturing automotive wire per conventional size prevailing in the market where the conductor and insulation meets the standard as wire types in the table below, and all of these wires are RoHS compliant.

Wire Type	Cross Section		Copper OD		Insulation OD		Insulation mat.
	Min	Max	Min	Max	Min	Max	
AV	0.3 mm^2	8.0 mm^2	0.18mm	0.40mm	2.0 ± 0.10 mm	5.5 ± 0.20 mm	PVC
AVF	0.25 mm^2	5.0 mm^2	0.16mm	0.26mm	1.9 ± 0.05 mm	4.6 ± 0.20 mm	PVC
AVS	0.3 mm^2	5.0 mm^2	0.16mm	0.32mm	1.4 ± 0.10 mm	4.6 ± 0.20 mm	PVC
AVSS	0.3 mm^2	3.0 mm^2	0.255mm	0.32mm	1.4 ± 0.05 mm	3.0 ± 0.15 mm	PVC
AVSSX	0.3 mm^2	2.0 mm^2	0.26mm	0.32mm	1.4 ± 0.05 mm	2.7 ± 0.10 mm	PVC
AEX	0.3 mm^2	12.0 mm^2	0.26mm	0.40mm	2.0 ± 0.10 mm	7.0 ± 0.25 mm	FR XL PE
AVX	0.5 mm^2	8.0 mm^2	0.18mm	0.40mm	2.0 ± 0.10 mm	5.3 ± 0.20 mm	XL PVC



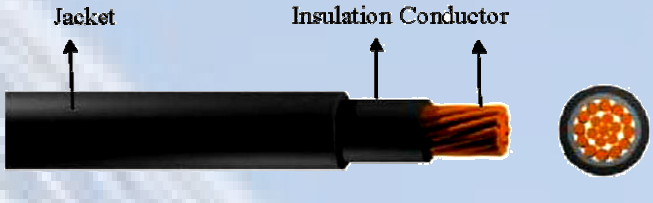
TUV PV Cable

Application:

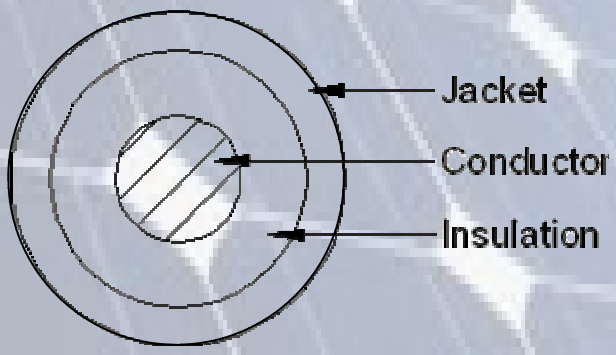
- Used at DC-side of photovoltaic system with maximum permissible voltage of DC 1.8kV.Photovoltaic Wire (PV Wire) may be used as wiring for solar panels, as the interconnection wiring of grounded and ungrounded photovoltaic power systems.

Product Description:

- Tinned, annealed, stranded copper conductor
- Material: FR XL PE
- Ambient Temperature: -40° C to +90° C
- Rated voltage: DC 1.8kV
- Expected period of use: 25 years
- Standard: 2 Pig 1169/08.2007 (TUV)



Cross Section Area	Conductor No./mm	Insulation Thickness mm	Insulation Diameter mm	Jacket thickness mm	Overall diameter mm	Current (appox.) A
2.5 mm^2	50/0.255	0.80	3.80 ± 0.15	0.70	5.40 ± 0.20	30
4.0 mm^2	56/0.300	0.85	4.40 ± 0.15	0.70	6.00 ± 0.20	50
6.0 mm^2	84/0.300	0.90	5.10 ± 0.15	0.70	6.70 ± 0.20	70



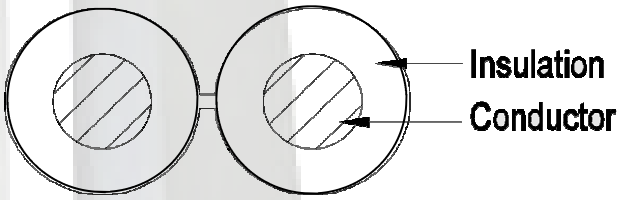
TÜVRheinland®

TÜVs (German pronunciation: [ˈtʏf]; short for German: ***Technischer Überwachungs-Verein***, English: Technical Inspection Association) are German organizations that work to validate the safety of products of all kinds to protect humans and the environment against hazards. The many subsidiaries of the TÜVs can also act as project developers for energy and traffic concepts, as problem solvers in environmental protection, and as certification bodies. Many of the TÜV organizations also provide certification for various international standards, such as ISO9001:2008 (quality management system) and ISO/TS16949 (automotive quality management system).

Adapted from TUV website

Speaker Wire

Speaker wire is used to make the electrical connection between loudspeakers and audio amplifier. It is normally consisted by two insulated conductors lay parallel and adhered by a tear-able line.
We supply speaker wires per rating of 80°C 300V, Bare or Tinned conductors are available, Besides, the speaker wire finished with Non-migration or transparent insulation are in our production range.



Speaker wire specification table

Cross section area	Conductor	Ohm/Km	Insulation OD (mm)
28 AWG (0.08 mm^2)	7/0.127	227.0	1.30 x 2.60
26 AWG (0.13 mm^2)	7 / 0.160	143.0	1.40 x 2.90
24 AWG (0.22 mm^2)	11 / 0.160	89.2	1.60 x 3.30
22 AWG (0.34 mm^2)	17 / 0.160	56.4	1.70 x 3.50
20 AWG (0.53 mm^2)	21 / 0.180	35.3	1.90 x 3.90
18 AWG (0.82 mm^2)	41 / 0.160	22.2	2.15 x 4.30
16 AWG (1.32 mm^2)	26 / 0.255	14.0	2.40 x 4.90

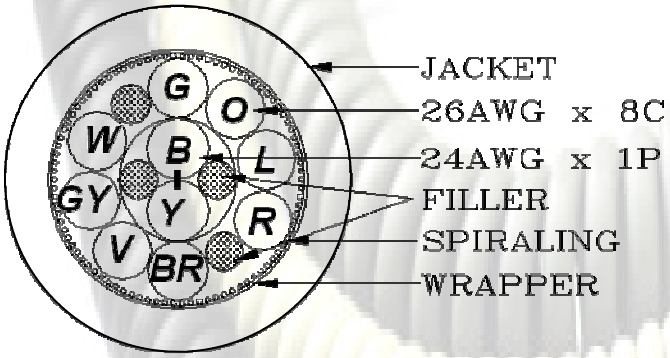
Coiled Cable

Coiled cables consist of a wire wound around a tubular axis. There are many types of coiled cables. Coiled cables provide an advantage over the straight cable as the coil up act as a spring to prevent the need of having the feet of excess cables lying around. They are far less likely to tangled, kinked or more severed compared to regular cables. Transporting the cables likely become easier with coiled cables.

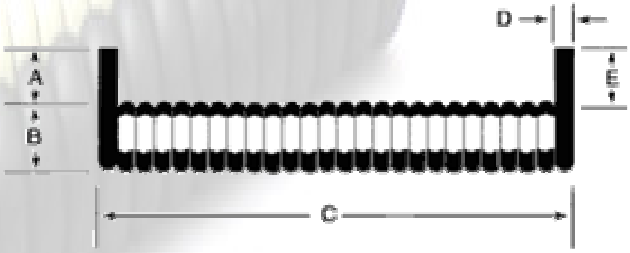
There is no limit on how or where these cables are used; this includes hospitals, computer labs, telephone cords, appliances manufacturer, electronic toy maker and etc. Household hair dryers, automotive repair equipment, and soldering iron cables are also using this cables.

Coiled cables materials are thermoplastic elastomers which have these three essential characteristics:

- The ability to be stretched to moderate elongations and, once stress is removed, it will return to something close to its original shape.
- Processable as a melt at high temperature.
- Absence of significant deformation.



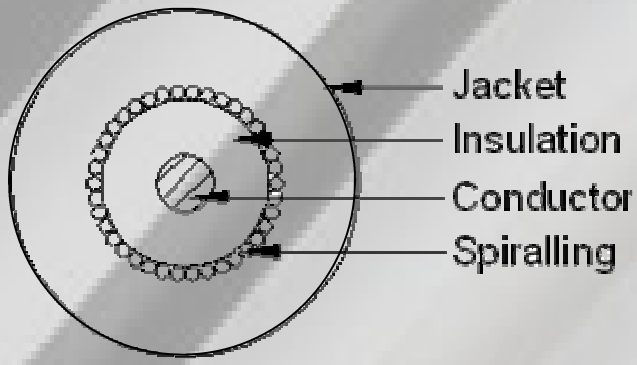
Coil cables are designed and manufactured according to various industry specifications such as straight lead length (A,E), Coil diameter (B), cable length (C) and cable diameter (D). In multicolored coiled cords, each color signifies different function of the coil and cable.



Coaxial Cable

Coaxial cable is a cable consisting of an inner conductor, surrounded by a tubular insulating layer typically made from a flexible material with a high dielectric constant, all of which is then surrounded by another conductive layer (typically of fine woven wire for flexibility, or of a thin metallic foil), and then finally covered again with a thin insulating layer on the outside. The term coaxial comes from the inner conductor and the outer shield sharing the same geometric axis.

Coaxial cables are often used as a transmission line for radio frequency signals. In a hypothetical ideal coaxial cable the electromagnetic field carrying the signal exists only in the space between the inner and outer conductors. Practical cables achieve this objective to a high degree. A Coaxial Cable provides protection of signals from external electromagnetic interference, and effectively guides signals with low emission along the length of the cable.



The insulator surrounding the inner conductor may be solid plastic and a foam plastic. The properties of dielectric control some electrical properties of the coaxial cable.

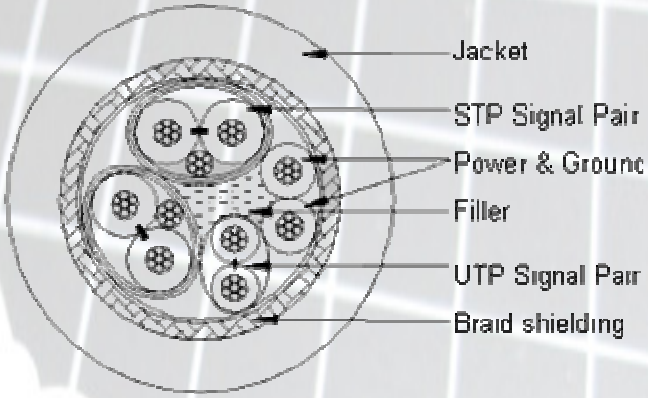
Coaxial Cable has braided copper wire forming the shield. Sometimes the braid is tin plated. For better shield performance, some coaxial cables have two or even more shield layers. The shield might be just two braids, but it is more common now to have a thin foil shield covered by a wire braid.

Type	Conductor		Insulation		Braid Shield		Jacket		Nom.	Nom.	VP	Attenuation		P/N
	(AWG)	MTRL	MTRL	(Dia)	MTRL	AWG/	MTRL	Overall Dia	Capacity	Impedence	(%)	(MHZ)	DB	
	No./MM			MM		Coverage (%)		MM	PF/M	(Ω)			KM	
RG-59/U	1 / 0.643	C	PE	3.70±0.15	C	91%	PVC	6.15±0.15	69	73	66	100	120	CA0604-6
RG-213	7 / 0.752	C	PE	7.20±0.2	C	96%	PVC	10.3±0.3	98	50	66	200	98	CA0604-7
RG-58 A/U	19 / 0.18	C	PE	2.90±0.1	C	92.70%	PVC	5.0±0.2	100	50	66	1000	557	CA0605-5
RG-174/U	7 / 0.16	C	XL PE	1.52±0.05	TC	94%	PVC	2.75±0.15	101	50	66	1000	1115	CA1210-1

USB Cable

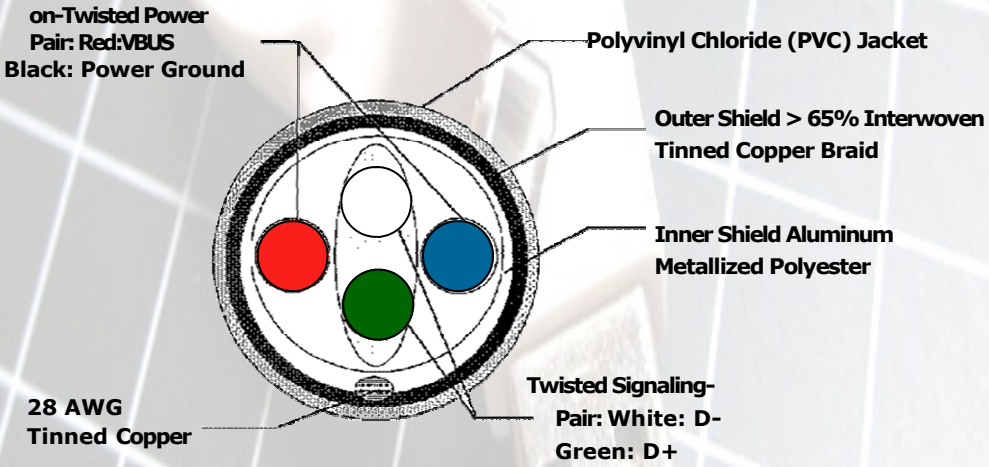
USB 3.0

- Tinned, Annealed, Stranded Copper Conductor
- Insulation Material: Foam Skin Polyethylene (Signal)
- Insulation Material: Polyvinyl Chloride (Power)
- Jacket Material: Polyvinyl Chloride
- Rated Temperature: 80°C
- Rated Voltage: 30V
- Standard: UL 1581 (UNDERWRITERS LABORATORIES)



AWG Size	Conductor	Insulation Diameter (mm)			Braid Shield	Overall Diameter
		STP Signal	UTP Signal	Power		
28 AWG	7/0.127	0.93±0.05	0.70±0.05	0.80±0.05	85%	5.50±0.15

USB 2.0



High-/full-speed Cable Construction

High-/full-speed cable consists of one 28 to 20 AWG non-twisted power pair and one 28 AWG twisted data pair with an aluminum metallized polyester inner shield, 28 AWG stranded tinned copper drain wire.

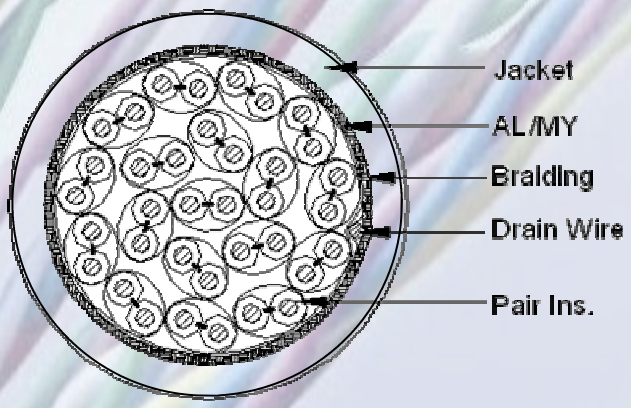
UL STYLE	Conductor				Insulation				Jacket	
	1P		2C		1P		2C		OD (mm)	Material
	AWG	CU	AWG	CU	OD	Material	OD (mm)	Material		
2725	28	7 / 0.127	24	7 / 0.200	0.85±0.05	HD Foam PE	1.12±0.05	SR PVC	4.70±0.20	PVC
20276	28	7 / 0.127	28	7 / 0.127	0.78±0.05	HD PE	0.78±0.05	SR PVC	3.50±0.15	PVC
20276	28	7 / 0.127	24	11 / 0.160	0.85±0.05	HD FM PE	1.12±0.05	SR PVC	4.80±0.20	PVC

Multi-pair cable

A multi-pair shielded cable is a cable made up of a plurality of pairs of insulated wires disposed inside a sleeve of insulating material. Multi-pair shielded cable is used extensively in the communications and computer industries. Cables for high-speed data communications typically consist of multiple twisted pairs.

A twisted pair exchange cable comprises groups of individual conductor wires that are twisted together into pairs. A wide variety of cable arrangements having twisted conductor pairs are utilized in the telecommunication industry. The increased need for high-speed communication transmissions has placed a greater demand on twisted conductor pair systems.

When twisted pairs are closely placed in a cable, electrical energy may be transferred from one twisted pair of a cable to another twisted pair. Such energy transferred between twisted pairs is referred to as crosstalk. As operating frequencies increase, improved crosstalk isolation between the twisted pairs becomes more critical.



For LAN cable:

	568A		568B	
Pair	Wire	Pin	Wire	Pin
1	White/Blue	5	White/Blue	5
	Blue	4	Blue	4
2	White/Orange	3	White/Orange	1
	Orange	6	Orange	2
3	White/Green	1	White/Green	3
	Green	2	Green	6
4	White/Brown	7	White/Brown	7
	Brown	8	Brown	8

Table: 568A vs. 568B
Pin and pair designation in two EIA/TIA standards. This applies to Cat 5, Cat 5e, and Cat 6 cables.

The TIA/EIA-568A or TIA/EIA 568B specification sets out transmission requirements, such as, for example, maximum acceptable crosstalk, skew and impedance mismatch values between twisted pairs, for cables that are classified as Category 5 (Cat. 5) and category 6 (Cat. 6) cables. In order to meet these requirements various techniques are em-ployed to control crosstalk between twisted pairs and skew.

Multi-pair cables are used to transfer communication signals between, for example, components of a local area network (LAN) such as computers, telephones, and other devices. With multi-pair cables, the signals generated at one end of the cable should ideally arrive at the same time at the opposite end even if they travel along different twisted pair wires.

Halogen Free Cable

Halogen free cable are increasingly necessary especially in highly populated areas and industrial sites to protect against the risk of toxic gas emissions during fire. This type of cable has high performance, clean and it is a safer alternative to regular cables. Halogen free cable does not contain Halogen-family elements such as Fluorine, Bromine, Iodine and Astatine. These element normally create toxic and corrosive fumes when burned. Therefore, it is suitable for public sector housing and major new development areas. Government in most country introduce stricter halogen regulations as the smoke created by burning the halogenated product is so dangerous to human health. Halogen-free cable also offers the added benefit of being more environmentally-friendly than their halogenated counterparts. Non-halogenated cables produce drastically lower levels of carbon monoxide sometimes as much as 360% lower carbon output and they produce less smoke overall.

Our insulation material which contain halogen free material are:

TPU - Thermoplastic polyurethane

TPE - Thermoplastic elastomers

XL PE - Crosslink Polyethylene

PE - Polyethylene

Customizing your cable

Our PIW's custom cables are designed & manufactured according to specific needs of our customers' applications. Due of this, it has become an integral part of the system & its performance. The advantages of our custom cable as a manufacturer include being able to:

- Save money by specifying the exact quantity & lengths required.
- Identifying the physical and electrical tolerances.
- Define the components (jacket, shield, insulation, shield, etc.) that best fit your application.
- Optimizing the conductor stranding, size, and color-code.
- Brand recognition by printing your company's logo and information on the jacket.

Basic information need for customizing your cable is as per below:

Conductor Information
Conductor Size:
Conductor Material:
Thermocouple Type:

Insulation Information
Material Type:
Insulation Thickness:

Cable Description
No. of Conductors:
No. of Pairs:
No of Triads:
No of Quads:

Shield Information
Shield Type:

Jacket Information
Material Type:
Color:
Jacket Thickness:
Max OD:

Additional Info
Overbraid:
Temperature Rating:
Voltage Rating:
Quantity (meter):

---

or Provide detail Drawing/File Attachment

UL/CUL/CSA Approval List

UL STYLE	TEMP. RATING °C	VOLTAGE RATING V
1007	80	300
1010	105	300
1015	105	600
1032	90	1000
1061	80	300
1095	80	300
1107	60	300
1108	80	300
1150	60	300
1185	80	300
1195	80	300
1208	80	300
1316	105 (Cu)	600
1354	60,80	30
1365	60	300
1375	60+ 80	30
1429	80	150
1430	105	300
1431	105	600
1436	80	300
1490	80	-
1497	80	300
1500	105	600
1510	80	30
1533	80	-
1569	80,90,105	300
1571	80	30
1583	105	-
1594	60	30
1598	60,80	30
1617	105	600
1618	80	300
1626	105	300
1627	105	600
1631	60,80	30
1638	90	300
1672	105	300
1683	80	30
1685	105	30
1691	80	30
1692	80,90,105	30
1728	60,80,90,105	30
1732	80	30
1747	60,80	30
1748	60,80	30
1761	105	300
1762	105	600
1763	80	30
1777	80	300
1781	105	600
1783	105	600
1788	60,80	30
1792	80	30
1800	105	300
1840	80	30
1856	60	300
1903	60	300
1953	80	30
1967	60,80	30
1972	80	30

UL STYLE	TEMP. RATING °C	VOLTAGE RATING V
1973	60, 80	30
1976	80	300
1992	80	300
2092	60	300
2094	60	300
2095	80	300
2096	80	300
2097	80	300
2103	105	300
2117	80	600
2129	60,80,90,105	600 ,1000
2348	90	600
2384	60	30
2405	80	300
2448	60,80	30
2462	60	300
2464	80	300
2468	80	300
2498	80	300
2502	80	30
2517	105	300
2547	80	-
2552	60	30
2555	80	300
2560	60	30
2562	80	300
2570	80	600,1000
2576	80	150
2586	105	600, 1000
2587	90	600
2598	60	300
2626	80	30
2651	105	300
2655	80	300
2661	80,90,105	300
2709	60	30
2725	60,80	30
2740	105	600
2789	60	30
2790	60	30
2791	80	30
2818	60	300
2835	60	30
2839	90	600
2844	60,80	30
2851	80	30
2854	80	30
2863	80	30
2885	105	-
2919	80	30
2935	80	300
2960	60	30
2969	60,80	30
2990	80	30
3173	125	600
3182	125	600
3195	125	600
3266	125	300
3271	125	600
3272	125	600

UL STYLE	TEMP. RATING °C	VOLTAGE RATING V
3275	105	1000
3296	125	600
3302	105	30
3314	105	300
3315	105	600
3317	105	300
3336	80	300
3352	125	600
3375	80	300
3385	105	300
3386	105	600
3393	80,90,105	300
3399	80,150	300
3409	105	600
3415	125	300
3423	125	300
3443	105	300
3450	105	300
3469	125	300
3475	105	300
3558	105	600
3646	80	600 , 1000
3666	105	600
3676	105	300
3697	125	300
10059	105	150
10070	105	600
10071	80	300
10097	105	600
10104	60	30
10113	60,80	300
10271	60, 80, 90, 105	1000
10340	105	600
10368	105	300
10387	90	30
10438	75	600
10446	80	300
10483	90, 105	600
10530	105	600
10532	80	300
10533	60,80,90	600
10599	80,90, 105	600, 750
10602	80	300
10623	90	600
10627	80	30
10643	105	600
10645	80	30
10646	80	300
10666	105	600
10699	80	600
10707	90	600
10708	105	600
10764	80	300
10767	60	30
10768	80	30
10794	60	30
10795	60	30
10796	80	30
10797	80	30
10798	60	300

UL STYLE	TEMP. RATING °C	VOLTAGE RATING V
10799	60	300
10800	80	300
10801	80	300
10924	90	1000
10925	105	1000
10958	105	600
10965	105	300
10983	80	300
11034	80	300
11035	80	30
11211	80	150
11212	80	300
11213	80	600
11214	80	600
11215	80	1000
11216	80	1000
11217	80	-
20002	60,80,90,105	30
20058	60,80	30
20063	80	300
20084	60	-
20096	60	150
20097	60	150
20098	60	150
20099	60	150
20170	60	30
20187	80	-
20188	90	-
20197	60	30
20233	80	300
20234	80	600, 1000
20235	80	N/S
20236	80	30
20251	60	150
20254	60	30
20276	60,80	30
20279	80	30
20280	80	300
20281	80	-
20306	60	-
20317	80	300
20318	60	300
20379	80	30
20405	60	150
20433	60	N/S
20464	60,75,80,90, 105	30,90,150
20544	80	30
20549	80	300
20554	80	30
20563	60	30
20621	60	30
20622	60	300
20626	80, 90	30,150,300,600
20724	80	300
20789	105	30
20841	80	300
20844	80	30
20850	80	300
20851	60, 80	30
20855	80	30

UL/CUL/CSA Approval List

UL STYLE	TEMP. RATING	VOLTAGE RATING
	°C	V
20939	80	600
20940	80	600, 1000
20954	60	300
20963	80	30
20968	60	150
20979	80	600
21029	60, 80	600
21060	80	600
21064	80	30
21088	60, 80	30
21089	75	600
21099	80	30
21100	80	30
21103	105	30
21104	80	30
21118	80	30
21120	80	600
21130	60	60
21144	80	300
21153	60	30
21156	60,75	600, 1000
21217	75	600
21238	80	600
21241	80	300
21254	80	1000
21264	80	300
21265	80	300
21266	80	600
21271	80	30
21271	80	30
21273	80	1000
21273	80	1000
21274	80	600
21274	80	600
21281	80	300
21281	80	300
21282	80	150
21282	80	150
21283	80	30
21283	80	30
21286	80	300
21286	80	300
21287	80	600
21287	80	600
21288	80	600
21288	80	600
21292	80	30
21292	80	30
21293	80	300
21293	80	300
21294	80	600
21294	80	600
21303	60	30
21303	60	30
21304	60	30
21304	60	30
21305	60	300
21305	60	300
21306	60	300
21306	60	300

UL STYLE	TEMP. RATING	VOLTAGE RATING
	°C	V
21307	80	300
21307	80	300
21309	60	600
21309	60	600
21313	60	30
21313	60	30
21314	60	90
21314	60	90
21315	60	600
21315	60	600
21316	60	1,000
21316	60	1,000
21317	80	30
21317	80	30
21318	80	90
21318	80	90
21320	80	1,000
21320	80	1,000
21322	60	90
21322	60	90
21323	60	150
21323	60	150
21324	60	300
21324	60	300
21325	60	600
21325	60	600
21327	80	90
21327	80	90
21328	80	150
21328	80	150
21329	80	600
21329	80	600
21338	80	300
21338	80	300
21339	80	300
21339	80	300
21349	80	300
21349	80	300
21350	60	30
21350	60	30
21353	60	30
21353	60	30
21370	80	300
21370	80	300
21371	80	30
21371	80	30
21390	80	30
21390	80	30
21451	80	30
21451	80	30
21452	60	30
21452	60	30
21453	60	30
21453	60	30
21454	60	30
21454	60	30
21455	80	30
21455	80	30
21456	80	30
21456	80	30

UL STYLE	TEMP. RATING	VOLTAGE RATING
	°C	V
21468	60	30
21468	60	30
21469	80	30
21469	80	30
21472	60	30
21472	60	30
21473	80	30
21473	80	30
21474	60	30
21474	60	30
21475	60	30
21475	60	30
21476	80	30
21491	80	30
21492	80	300
21502	80	30
21513	60	300
21535	80	600
21573	80	600
21611	80	30
21612	80	600
21631	80	150
21632	80	300
21633	80	600
21634	80	600
21697	80	30
21698	80	30
21706	80	30

International Approvals

PAN-INTERNATIONAL WIRE & CABLE (MALAYSIA) SDN. BHD (178247-M)

Plot 6, Jalan Jelawat Satu, Kawasan Perusahaan Seberang Jaya,

13700 Seberang Jaya, Pulau Pinang, Malaysia.

Tel: (604) 399 3516 (6 lines) Fax: (604) 398 6248

E-mail: sales@pan-intl.com