

**Type P Instrument Pairs Signal Cable Overall Shield AL/PS tape (0.6/1kV)
Fire Resistant**



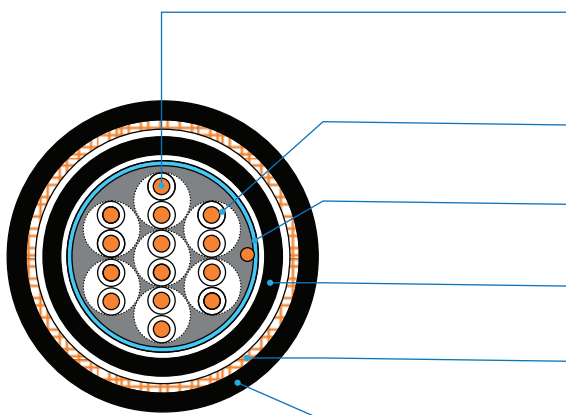
CABLE DESIGNATION

0.6/1kV FS-TT(OS)PN, FS-TT(OS)PNB, FS-TT(OS)PNBS

APPLICATION STANDARD

Design guide	IEEE 1580(2010) , UL 1309(2017)
Insulation material	IEEE 1580, Type P UL 1309, X110
Sheath material	IEEE 1580, Type N
Flame retardant	IEEE 1202 & IEC 60332-3 Category A
Fire resistance	IEC 60331-2I(90min), IEC 60331-1,-2(120min), FS-type only
Cold bend / impact	CSA C22.2 NO. 2556(-40°C/-40°C) (Formerly CSA C22.2 NO.0.3)

CONSTRUCTION



Sectional view

Conductor

- Flexible stranded tinned annealed copper wires as per IEEE 1580
- A suitable separator tape(s) may be applied over the conductor

Insulation

XLPO (Type P) as per IEEE 1580 & XLPO (X110) as per UL 1309

Overall shield

Polyester/aluminum tape (AL/PS tape) + Tinned copper drain wire

Jacket

Thermosetting Neoprene (Type N) as per IEEE 1580 & UL 1309

Aarmor

- Braid of commercial bronze wires
- A suitable separator tape(s) may be applied under / over the armor

Sheath

- Thermosetting Neoprene (Type N) as per IEEE 1580 & UL 1309
- Outer sheath color : Black

Twisting

Two/Three Insulated cores shall be twisted together to form a pair / triad

Fire resisting layer(optional)

Mica/glass tape (FS Type cable only)

Cabling

- Twisted pairs/triads shall be cabled
- Flame retardant & non-hygroscopic fillers may be used
- Suitable tape(s) may be applied on the cabled core
- A Filler may be applied to obtain a circular Cable

Core identification

Colored insulation plus

Arabic number printing on the insulation

Each core color : pair _ Black, White(or Red)

triad _ Black, White, Red

Type P Instrument Pairs Signal Cable Overall Shield AL/PS tape (0.6/1kV) Fire Resistant

0.6/1kV FS-TP(OS)PN, 0.6/1kV FS-TP(OS)PNB, 0.6/1kV FS-TP(OS)PNBS

No. of Pairs	Conductor Nominal Area	Thickness of Insulation	Thickness of Jacket	Thickness of Sheath	Unarmor		Armor		Armor and Sheath	
					Nom.Dia. Approx.	Weight Approx.	Nom.Dia. Approx.	Weight Approx.	Nom.Dia. Approx.	Weight Approx.
No.	AWG	mm/inch	mm/inch	mm/inch	mm/inch	kg/km	mm/inch	kg/km	mm/inch	kg/km
2P	18	0.76/0.030	1.52 / 0.060	1.52 / 0.060	15.3 / 0.602	240	17.1 / 0.673	400	20.5 / 0.807	550
3P			1.52 / 0.060	2.03 / 0.080	16.4 / 0.646	290	18.2 / 0.717	460	22.7 / 0.894	680
4P			1.52 / 0.060	2.03 / 0.080	17.4 / 0.685	350	19.2 / 0.756	530	23.7 / 0.933	750
5P			1.52 / 0.060	2.03 / 0.080	19.5 / 0.768	570	21.3 / 0.839	800	25.8 / 1.016	1,080
7P			2.03 / 0.080	2.03 / 0.080	22.1 / 0.870	570	23.9 / 0.941	800	28.4 / 1.118	1,080
8P			2.03 / 0.080	2.03 / 0.080	23.5 / 0.925	640	25.3 / 0.996	880	29.8 / 1.173	1,170
10P			2.03 / 0.080	2.03 / 0.080	26.5 / 1.043	780	28.3 / 1.114	1,050	32.8 / 1.291	1,380
12P			2.03 / 0.080	2.03 / 0.080	27.5 / 1.083	880	29.3 / 1.154	1,160	33.8 / 1.331	1,490
14P			2.03 / 0.080	2.03 / 0.080	28.6 / 1.126	970	30.4 / 1.197	1,260	34.9 / 1.374	1,610
16P			2.03 / 0.080	2.03 / 0.080	30.7 / 1.209	1,100	32.5 / 1.280	1,410	37.0 / 1.457	1,780
19P			2.03 / 0.080	2.03 / 0.080	32.1 / 1.264	1,240	33.9 / 1.335	1,560	38.4 / 1.512	1,950
24P			2.03 / 0.080	2.79 / 0.110	36.3 / 1.429	1,540	38.1 / 1.500	1,910	44.1 / 1.736	2,490
2P	16	0.76/0.030	1.52 / 0.060	2.03 / 0.080	15.9 / 0.626	270	17.7 / 0.697	430	22.2 / 0.874	650
3P			1.52 / 0.060	2.03 / 0.080	17.0 / 0.669	330	18.8 / 0.740	500	23.3 / 0.917	730
4P			1.52 / 0.060	2.03 / 0.080	18.1 / 0.713	390	19.9 / 0.783	580	24.4 / 0.961	810
5P			1.52 / 0.060	2.03 / 0.080	20.3 / 0.799	650	22.1 / 0.870	880	26.6 / 1.047	1,170
7P			2.03 / 0.080	2.03 / 0.080	22.9 / 0.902	650	24.7 / 0.972	880	29.2 / 1.150	1,170
8P			2.03 / 0.080	2.03 / 0.080	24.4 / 0.961	720	26.2 / 1.031	970	30.7 / 1.209	1,280
10P			2.03 / 0.080	2.03 / 0.080	27.5 / 1.083	890	29.3 / 1.154	1,170	33.8 / 1.331	1,500
12P			2.03 / 0.080	2.03 / 0.080	28.6 / 1.126	1,000	30.4 / 1.197	1,290	34.9 / 1.374	1,630
14P			2.03 / 0.080	2.03 / 0.080	29.7 / 1.169	1,110	31.5 / 1.240	1,410	36.0 / 1.417	1,770
16P			2.03 / 0.080	2.03 / 0.080	31.9 / 1.256	1,260	33.7 / 1.327	1,580	38.2 / 1.504	1,960
19P			2.03 / 0.080	2.03 / 0.080	33.4 / 1.315	1,420	35.2 / 1.386	1,760	39.7 / 1.563	2,160
24P			2.03 / 0.080	2.79 / 0.110	37.8 / 1.488	1,770	39.6 / 1.559	2,150	45.6 / 1.795	2,760
2P	14	0.76/0.030	1.52 / 0.060	2.03 / 0.080	17.1 / 0.673	320	18.9 / 0.744	500	23.4 / 0.921	720
3P			1.52 / 0.060	2.03 / 0.080	18.3 / 0.720	400	20.1 / 0.791	590	24.6 / 0.969	830
4P			1.52 / 0.060	2.03 / 0.080	19.6 / 0.772	480	21.4 / 0.843	680	25.9 / 1.020	940
5P			2.03 / 0.080	2.03 / 0.080	23.1 / 0.909	800	24.9 / 0.980	1,060	29.4 / 1.157	1,370
7P			2.03 / 0.080	2.03 / 0.080	24.9 / 0.980	800	26.7 / 1.051	1,060	31.2 / 1.228	1,370
8P			2.03 / 0.080	2.03 / 0.080	26.5 / 1.043	900	28.3 / 1.114	1,170	32.8 / 1.291	1,500
10P			2.03 / 0.080	2.03 / 0.080	29.7 / 1.169	1,110	31.5 / 1.240	1,410	36.0 / 1.417	1,770
12P			2.03 / 0.080	2.03 / 0.080	31.0 / 1.220	1,260	32.8 / 1.291	1,570	37.3 / 1.469	1,940
14P			2.03 / 0.080	2.03 / 0.080	32.2 / 1.268	1,400	34.0 / 1.339	1,730	38.5 / 1.516	2,110
16P			2.03 / 0.080	2.03 / 0.080	34.6 / 1.362	1,590	36.4 / 1.433	1,940	40.9 / 1.610	2,350
19P			2.03 / 0.080	2.79 / 0.110	36.2 / 1.425	1,810	38.0 / 1.496	2,180	44.0 / 1.732	2,760
24P			2.03 / 0.080	2.79 / 0.110	41.1 / 1.618	2,270	42.9 / 1.689	2,680	48.9 / 1.925	3,330

Note. For outer diameter, it is applied to ±5% manufacturing tolerance.