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EUTEX INTERNATIONAL

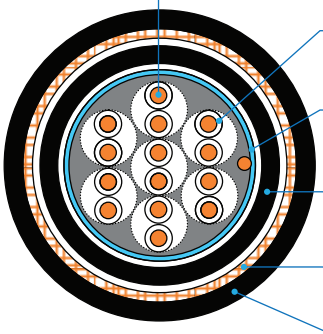
TYPE P INSTRUMENT PAIRS SIGNAL CABLE

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

CABLE DESIGNATION
0.6/1kV TT(OS)PN, TT(OS)PNB, 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 60331-21(90min), IEC 60331-1,-2(120min), FS-type only
Cold bend / impact	CSA C22.2 NO. 2556(-40℃/-40℃) (Fomerly 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

Armor
- 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

Core identification
Colored insulation plus

Arabic number printing on the insulation
Each core color : pair _ Black, White(or Red)
triad _ Black, White, Red

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

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

0.6/1kV TP(OS)PN, 0.6/1kV TP(OS)PNB, 0.6/1kV 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	1.14 / 0.045	1.52 / 0.060	12.5 / 0.492	180	14.3 / 0.563	310	17.7 / 0.697	440
3P			1.52 / 0.060	1.52 / 0.060	14.1 / 0.555	240	15.9 / 0.626	390	19.3 / 0.760	530
4P			1.52 / 0.060	1.52 / 0.060	15.0 / 0.591	290	16.8 / 0.661	440	20.2 / 0.795	590
5P			1.52 / 0.060	2.03 / 0.080	16.7 / 0.657	420	18.5 / 0.728	610	23.0 / 0.906	840
7P			1.52 / 0.060	2.03 / 0.080	17.9 / 0.705	420	19.7 / 0.776	610	24.2 / 0.953	840
8P			1.52 / 0.060	2.03 / 0.080	19.0 / 0.748	470	20.8 / 0.819	670	25.3 / 0.996	910
10P			2.03 / 0.080	2.03 / 0.080	22.4 / 0.882	630	24.2 / 0.953	860	28.7 / 1.130	1,140
12P			2.03 / 0.080	2.03 / 0.080	23.3 / 0.917	710	25.1 / 0.988	940	29.6 / 1.165	1,240
14P			2.03 / 0.080	2.03 / 0.080	24.2 / 0.953	780	26.0 / 1.024	1,030	30.5 / 1.201	1,330
16P			2.03 / 0.080	2.03 / 0.080	26.1 / 1.028	880	27.9 / 1.098	1,150	32.4 / 1.276	1,470
19P			2.03 / 0.080	2.03 / 0.080	27.2 / 1.071	990	29.0 / 1.142	1,270	33.5 / 1.319	1,600
24P			2.03 / 0.080	2.03 / 0.080	30.7 / 1.209	1,230	32.5 / 1.280	1,540	37.0 / 1.457	1,910
2P	16	0.76/0.030	1.14 / 0.045	1.52 / 0.060	13.1 / 0.516	210	14.9 / 0.587	350	18.3 / 0.720	480
3P			1.52 / 0.060	1.52 / 0.060	14.7 / 0.579	280	16.5 / 0.650	430	19.9 / 0.783	580
4P			1.52 / 0.060	1.52 / 0.060	15.6 / 0.614	330	17.4 / 0.685	490	20.8 / 0.819	640
5P			1.52 / 0.060	2.03 / 0.080	17.5 / 0.689	490	19.3 / 0.760	680	23.8 / 0.937	920
7P			1.52 / 0.060	2.03 / 0.080	18.7 / 0.736	490	20.5 / 0.807	680	25.0 / 0.984	920
8P			1.52 / 0.060	2.03 / 0.080	19.9 / 0.783	550	21.7 / 0.854	750	26.2 / 1.031	1,010
10P			2.03 / 0.080	2.03 / 0.080	23.5 / 0.925	730	25.3 / 0.996	970	29.8 / 1.173	1,270
12P			2.03 / 0.080	2.03 / 0.080	24.4 / 0.961	820	26.2 / 1.031	1,070	30.7 / 1.209	1,370
14P			2.03 / 0.080	2.03 / 0.080	25.5 / 1.004	920	27.3 / 1.075	1,180	31.8 / 1.252	1,490
16P			2.03 / 0.080	2.03 / 0.080	27.3 / 1.075	1,030	29.1 / 1.146	1,310	33.6 / 1.323	1,650
19P			2.03 / 0.080	2.03 / 0.080	28.6 / 1.126	1,170	30.4 / 1.197	1,460	34.9 / 1.374	1,810
24P			2.03 / 0.080	2.03 / 0.080	32.2 / 1.268	1,450	34.0 / 1.339	1,780	38.5 / 1.516	2,160
2P	14	0.76/0.030	1.52 / 0.060	1.52 / 0.060	15.0 / 0.591	290	16.8 / 0.661	440	20.2 / 0.795	590
3P			1.52 / 0.060	2.03 / 0.080	16.1 / 0.634	360	17.9 / 0.705	520	22.4 / 0.882	740
4P			1.52 / 0.060	2.03 / 0.080	17.1 / 0.673	420	18.9 / 0.744	600	23.4 / 0.921	830
5P			1.52 / 0.060	2.03 / 0.080	19.1 / 0.752	640	20.9 / 0.823	850	25.4 / 1.000	1,110
7P			1.52 / 0.060	2.03 / 0.080	20.5 / 0.807	640	22.3 / 0.878	850	26.8 / 1.055	1,110
8P			2.03 / 0.080	2.03 / 0.080	23.0 / 0.906	780	24.8 / 0.976	1,010	29.3 / 1.154	1,300
10P			2.03 / 0.080	2.03 / 0.080	25.9 / 1.020	950	27.7 / 1.091	1,210	32.2 / 1.268	1,530
12P			2.03 / 0.080	2.03 / 0.080	26.9 / 1.059	1,070	28.7 / 1.130	1,350	33.2 / 1.307	1,680
14P			2.03 / 0.080	2.03 / 0.080	28.0 / 1.102	1,200	29.8 / 1.173	1,490	34.3 / 1.350	1,830
16P			2.03 / 0.080	2.03 / 0.080	30.0 / 1.181	1,360	31.8 / 1.252	1,660	36.3 / 1.429	2,030
19P			2.03 / 0.080	2.03 / 0.080	31.4 / 1.236	1,550	33.2 / 1.307	1,870	37.7 / 1.484	2,240
24P			2.03 / 0.080	2.03 / 0.080	35.5 / 1.398	1,930	37.3 / 1.469	2,280	41.8 / 1.646	2,710

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