

Type P Power Control Cable (0.6/1kV) Flame Retardant Multi Conductor



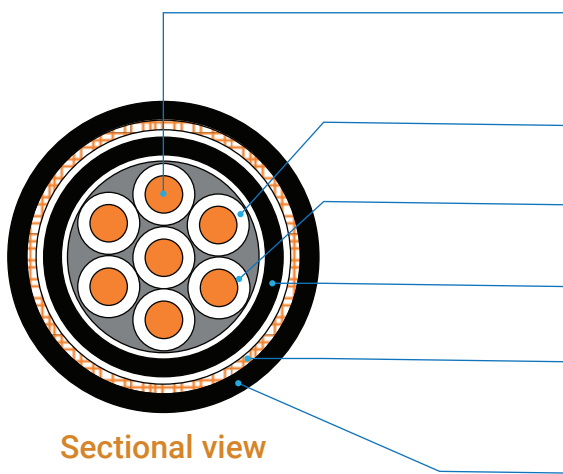
CABLE DESIGNATION

0.6/1kV CPN, CPNB, CPNBS

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



Conductor

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

Fire resisting layer(optional)

Mica/glass tape (FS Type cable only)

Insulation

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

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

Core identification

Colored insulation or
Arabic number printing on the insulation

Cabling

- Insulated conductors 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 Power Control Cable (0.6/1kV) Flame Retardant Multi Conductor
0.6/1kV CPN, 0.6/1kV CPNB, 0.6/1kV CPNBS

No. of Cores	Conductor	Thickness of Insulation	Thickness of Jacket	Thickness of Sheath	Unarmor		Armor		Armor and Sheath	
	Nominal Area				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
2	18	0.76/0.030	1.14 / 0.045	1.14 / 0.045	8.6 / 0.339	90	10.4 / 0.409	180	13.1 / 0.516	260
3			1.14 / 0.045	1.52 / 0.060	9.0 / 0.354	110	10.8 / 0.425	200	14.2 / 0.559	300
4			1.14 / 0.045	1.52 / 0.060	9.8 / 0.386	130	11.6 / 0.457	230	15.0 / 0.591	340
5			1.14 / 0.045	1.52 / 0.060	10.7 / 0.421	150	12.5 / 0.492	270	15.9 / 0.626	380
6			1.14 / 0.045	1.52 / 0.060	11.6 / 0.457	180	13.4 / 0.528	300	16.8 / 0.661	420
7			1.14 / 0.045	1.52 / 0.060	11.6 / 0.457	190	13.4 / 0.528	310	16.8 / 0.661	430
8			1.14 / 0.045	1.52 / 0.060	12.5 / 0.492	220	14.3 / 0.563	350	17.7 / 0.697	480
10			1.52 / 0.060	1.52 / 0.060	15.3 / 0.602	300	17.1 / 0.673	460	20.5 / 0.807	610
12			1.52 / 0.060	1.52 / 0.060	15.7 / 0.618	330	17.5 / 0.689	490	20.9 / 0.823	650
14			1.52 / 0.060	2.03 / 0.080	16.5 / 0.650	370	18.3 / 0.720	540	22.8 / 0.898	760
16			1.52 / 0.060	2.03 / 0.080	17.4 / 0.685	420	19.2 / 0.756	600	23.7 / 0.933	820
19			1.52 / 0.060	2.03 / 0.080	18.3 / 0.720	470	20.1 / 0.791	660	24.6 / 0.969	900
20			1.52 / 0.060	2.03 / 0.080	18.8 / 0.740	500	20.6 / 0.811	690	25.1 / 0.988	930
24			2.03 / 0.080	2.03 / 0.080	22.3 / 0.878	660	24.1 / 0.949	880	28.6 / 1.126	1,160
30			2.03 / 0.080	2.03 / 0.080	23.6 / 0.929	770	25.4 / 1.000	1,010	29.9 / 1.177	1,300
37			2.03 / 0.080	2.03 / 0.080	25.4 / 1.000	900	27.2 / 1.071	1,160	31.7 / 1.248	1,480
44			2.03 / 0.080	2.03 / 0.080	28.4 / 1.118	1,080	30.2 / 1.189	1,370	34.7 / 1.366	1,710
60			2.03 / 0.080	2.03 / 0.080	31.4 / 1.236	1,380	33.2 / 1.307	1,700	37.7 / 1.484	2,080
91			2.03 / 0.080	2.79 / 0.110	37.4 / 1.472	1,990	39.2 / 1.543	2,370	45.2 / 1.780	2,970
2	16	0.76/0.030	1.14 / 0.045	1.52 / 0.060	8.9 / 0.350	100	10.7 / 0.421	190	14.1 / 0.555	290
3			1.14 / 0.045	1.52 / 0.060	9.4 / 0.370	120	11.2 / 0.441	220	14.6 / 0.575	320
4			1.14 / 0.045	1.52 / 0.060	10.2 / 0.402	150	12.0 / 0.472	260	15.4 / 0.606	370
5			1.14 / 0.045	1.52 / 0.060	11.1 / 0.437	170	12.9 / 0.508	290	16.3 / 0.642	410
6			1.14 / 0.045	1.52 / 0.060	12.1 / 0.476	210	13.9 / 0.547	330	17.3 / 0.681	460
7			1.14 / 0.045	1.52 / 0.060	12.1 / 0.476	220	13.9 / 0.547	350	17.3 / 0.681	470
8			1.14 / 0.045	1.52 / 0.060	13.0 / 0.512	250	14.8 / 0.583	390	18.2 / 0.717	520
10			1.52 / 0.060	2.03 / 0.080	15.9 / 0.626	340	17.7 / 0.697	510	22.2 / 0.874	720
12			1.52 / 0.060	2.03 / 0.080	16.4 / 0.646	390	18.2 / 0.717	560	22.7 / 0.894	770
14			1.52 / 0.060	2.03 / 0.080	17.2 / 0.677	430	19.0 / 0.748	610	23.5 / 0.925	840
16			1.52 / 0.060	2.03 / 0.080	18.2 / 0.717	490	20.0 / 0.787	670	24.5 / 0.965	910
19			1.52 / 0.060	2.03 / 0.080	19.1 / 0.752	550	20.9 / 0.823	750	25.4 / 1.000	1,000
20			1.52 / 0.060	2.03 / 0.080	19.7 / 0.776	580	21.5 / 0.846	790	26.0 / 1.024	1,040
24			2.03 / 0.080	2.03 / 0.080	23.4 / 0.921	770	25.2 / 0.992	1,010	29.7 / 1.169	1,300
30			2.03 / 0.080	2.03 / 0.080	24.8 / 0.976	900	26.6 / 1.047	1,150	31.1 / 1.224	1,460
37			2.03 / 0.080	2.03 / 0.080	26.6 / 1.047	1,070	28.4 / 1.118	1,340	32.9 / 1.295	1,660
44			2.03 / 0.080	2.03 / 0.080	29.8 / 1.173	1,280	31.6 / 1.244	1,580	36.1 / 1.421	1,940
60			2.03 / 0.080	2.03 / 0.080	32.9 / 1.295	1,640	34.7 / 1.366	1,970	39.2 / 1.543	2,360
91			2.03 / 0.080	2.79 / 0.110	39.3 / 1.547	2,380	41.1 / 1.618	2,770	47.1 / 1.854	3,400
2	14	0.76/0.030	1.14 / 0.045	1.52 / 0.060	9.6 / 0.378	120	11.4 / 0.449	220	14.8 / 0.583	330
3			1.14 / 0.045	1.52 / 0.060	10.2 / 0.402	150	12.0 / 0.472	260	15.4 / 0.606	370
4			1.14 / 0.045	1.52 / 0.060	11.1 / 0.437	190	12.9 / 0.508	310	16.3 / 0.642	420
5			1.14 / 0.045	1.52 / 0.060	12.1 / 0.476	230	13.9 / 0.547	350	17.3 / 0.681	480
6			1.14 / 0.045	1.52 / 0.060	13.2 / 0.520	270	15.0 / 0.591	400	18.4 / 0.724	540
7			1.14 / 0.045	1.52 / 0.060	13.2 / 0.520	290	15.0 / 0.591	430	18.4 / 0.724	560
8			1.52 / 0.060	1.52 / 0.060	14.9 / 0.587	350	16.7 / 0.657	510	20.1 / 0.791	660
10			1.52 / 0.060	2.03 / 0.080	17.4 / 0.685	450	19.2 / 0.756	630	23.7 / 0.933	850
12			1.52 / 0.060	2.03 / 0.080	17.9 / 0.705	500	19.7 / 0.776	690	24.2 / 0.953	920
14			1.52 / 0.060	2.03 / 0.080	18.8 / 0.740	570	20.6 / 0.811	760	25.1 / 0.988	1,010
16			1.52 / 0.060	2.03 / 0.080	19.8 / 0.780	640	21.6 / 0.850	840	26.1 / 1.028	1,090
19			1.52 / 0.060	2.03 / 0.080	20.9 / 0.823	730	22.7 / 0.894	950	27.2 / 1.071	1,210
20			2.03 / 0.080	2.03 / 0.080	22.6 / 0.890	830	24.4 / 0.961	1,060	28.9 / 1.138	1,340
24			2.03 / 0.080	2.03 / 0.080	25.6 / 1.008	1,000	27.4 / 1.079	1,260	31.9 / 1.256	1,580
30			2.03 / 0.080	2.03 / 0.080	27.1 / 1.067	1,190	28.9 / 1.138	1,460	33.4 / 1.315	1,790
37			2.03 / 0.080	2.03 / 0.080	29.1 / 1.146	1,410	30.9 / 1.217	1,710	35.4 / 1.394	2,060
44			2.03 / 0.080	2.03 / 0.080	32.7 / 1.287	1,690	34.5 / 1.358	2,020	39.0 / 1.535	2,410
60			2.03 / 0.080	2.79 / 0.110	36.2 / 1.425	2,190	38.0 / 1.496	2,560	44.0 / 1.732	3,140
91			2.79 / 0.110	2.79 / 0.110	44.7 / 1.760	3,360	46.5 / 1.831	3,810	52.5 / 2.067	4,510

Note. For outer diameter, it is applied to $\pm 5\%$ manufacturing tolerance.

Type P Power Control Cable (0.6/1kV) Flame Retardant Multi Conductor
0.6/1kV CPN, 0.6/1kV CPNB, 0.6/1kV CPNBS

No. of Cores	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
2	12	0.76/0.030	1.14 / 0.045	1.52 / 0.060	10.6 / 0.417	160	12.4 / 0.488	270	15.8 / 0.622	380
3			1.14 / 0.045	1.52 / 0.060	11.2 / 0.441	200	13.0 / 0.512	320	16.4 / 0.646	440
4			1.14 / 0.045	1.52 / 0.060	12.2 / 0.480	250	14.0 / 0.551	380	17.4 / 0.685	500
5			1.52 / 0.060	1.52 / 0.060	14.1 / 0.555	320	15.9 / 0.626	470	19.3 / 0.760	610
6			1.52 / 0.060	1.52 / 0.060	15.3 / 0.602	380	17.1 / 0.673	540	20.5 / 0.807	690
7			1.52 / 0.060	1.52 / 0.060	15.3 / 0.602	420	17.1 / 0.673	570	20.5 / 0.807	730
8			1.52 / 0.060	2.03 / 0.080	16.5 / 0.650	470	18.3 / 0.720	640	22.8 / 0.898	860
10			1.52 / 0.060	2.03 / 0.080	19.3 / 0.760	600	21.1 / 0.831	800	25.6 / 1.008	1,050
12			1.52 / 0.060	2.03 / 0.080	19.9 / 0.783	680	21.7 / 0.854	890	26.2 / 1.031	1,140
14			1.52 / 0.060	2.03 / 0.080	20.9 / 0.823	770	22.7 / 0.894	990	27.2 / 1.071	1,250
16			2.03 / 0.080	2.03 / 0.080	23.2 / 0.913	930	25.0 / 0.984	1,170	29.5 / 1.161	1,460
19			2.03 / 0.080	2.03 / 0.080	24.4 / 0.961	1,070	26.2 / 1.031	1,320	30.7 / 1.209	1,620
20			2.03 / 0.080	2.03 / 0.080	25.2 / 0.992	1,120	27.0 / 1.063	1,380	31.5 / 1.240	1,690
24			2.03 / 0.080	2.03 / 0.080	28.4 / 1.118	1,350	30.2 / 1.189	1,640	34.7 / 1.366	1,990
30			2.03 / 0.080	2.03 / 0.080	30.1 / 1.185	1,620	31.9 / 1.256	1,920	36.4 / 1.433	2,290
37			2.03 / 0.080	2.03 / 0.080	32.4 / 1.276	1,940	34.2 / 1.346	2,260	38.7 / 1.524	2,650
44			2.03 / 0.080	2.79 / 0.110	36.4 / 1.433	2,320	38.2 / 1.504	2,690	44.2 / 1.740	3,270
60			2.03 / 0.080	2.79 / 0.110	40.4 / 1.591	3,040	42.2 / 1.661	3,440	48.2 / 1.898	4,080
91			2.79 / 0.110	2.79 / 0.110	49.9 / 1.965	4,640	51.7 / 2.035	5,140	57.7 / 2.272	5,920
2	10	0.76/0.030	1.14 / 0.045	1.52 / 0.060	12.0 / 0.472	210	13.8 / 0.543	340	17.2 / 0.677	460
3			1.14 / 0.045	1.52 / 0.060	12.8 / 0.504	280	14.6 / 0.575	410	18.0 / 0.709	540
4			1.52 / 0.060	1.52 / 0.060	14.7 / 0.579	370	16.5 / 0.650	520	19.9 / 0.783	670
5			1.52 / 0.060	2.03 / 0.080	16.0 / 0.630	450	17.8 / 0.701	610	22.3 / 0.878	830
6			1.52 / 0.060	2.03 / 0.080	17.5 / 0.689	530	19.3 / 0.760	710	23.8 / 0.937	940
7			1.52 / 0.060	2.03 / 0.080	17.5 / 0.689	580	19.3 / 0.760	760	23.8 / 0.937	990
8			1.52 / 0.060	2.03 / 0.080	18.9 / 0.744	660	20.7 / 0.815	860	25.2 / 0.992	1,100
10			2.03 / 0.080	2.03 / 0.080	23.3 / 0.917	900	25.1 / 0.988	1,140	29.6 / 1.165	1,430
12			2.03 / 0.080	2.03 / 0.080	24.0 / 0.945	1,030	25.8 / 1.016	1,270	30.3 / 1.193	1,570
14			2.03 / 0.080	2.03 / 0.080	25.3 / 0.996	1,170	27.1 / 1.067	1,420	31.6 / 1.244	1,740
16			2.03 / 0.080	2.03 / 0.080	26.7 / 1.051	1,310	28.5 / 1.122	1,580	33.0 / 1.299	1,910
19			2.03 / 0.080	2.03 / 0.080	28.1 / 1.106	1,510	29.9 / 1.177	1,800	34.4 / 1.354	2,140
20			2.03 / 0.080	2.03 / 0.080	28.9 / 1.138	1,590	30.7 / 1.209	1,880	35.2 / 1.386	2,230
24			2.03 / 0.080	2.03 / 0.080	32.8 / 1.291	1,930	34.6 / 1.362	2,260	39.1 / 1.539	2,650
30			2.03 / 0.080	2.03 / 0.080	34.8 / 1.370	2,310	36.6 / 1.441	2,660	41.1 / 1.618	3,080
37			2.03 / 0.080	2.79 / 0.110	37.5 / 1.476	2,780	39.3 / 1.547	3,160	45.3 / 1.783	3,760
44			2.03 / 0.080	2.79 / 0.110	42.3 / 1.665	3,340	44.1 / 1.736	3,770	50.1 / 1.972	4,440
60			2.79 / 0.110	2.79 / 0.110	48.5 / 1.909	4,560	50.3 / 1.980	5,050	56.3 / 2.217	5,810
91			2.79 / 0.110	2.79 / 0.110	57.9 / 2.280	6,700	59.7 / 2.350	7,280	65.7 / 2.587	8,170

Note. For outer diameter, it is applied to $\pm 5\%$ manufacturing tolerance.