

Type P Power Control Cable (0.6/1kV) Fire Resistant Multi Conductor



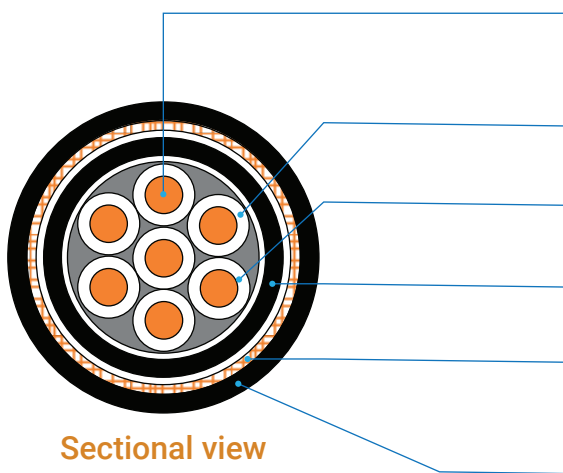
CABLE DESIGNATION

0.6/1kV FS-CPN, FS-CPNB, FS-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 60331-21(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) Fire Resistant Multi Conductor

0.6/1kV FS-CPN, 0.6/1kV FS-CPNB, 0.6/1kV FS-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	1.52 / 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	140	12.0 / 0.472	250	15.4 / 0.606	360
4			1.14 / 0.045	1.52 / 0.060	11.1 / 0.437	170	12.9 / 0.508	290	16.3 / 0.642	410
5			1.14 / 0.045	1.52 / 0.060	12.1 / 0.476	200	13.9 / 0.547	330	17.3 / 0.681	460
6			1.14 / 0.045	1.52 / 0.060	13.1 / 0.516	240	14.9 / 0.587	380	18.3 / 0.720	510
7			1.14 / 0.045	1.52 / 0.060	13.1 / 0.516	250	14.9 / 0.587	380	18.3 / 0.720	520
8			1.52 / 0.060	1.52 / 0.060	14.9 / 0.587	310	16.7 / 0.657	470	20.1 / 0.791	610
10			1.52 / 0.060	2.03 / 0.080	17.3 / 0.681	410	19.1 / 0.752	590	23.6 / 0.929	820
12			1.52 / 0.060	2.03 / 0.080	17.9 / 0.705	450	19.7 / 0.776	630	24.2 / 0.953	870
14			1.52 / 0.060	2.03 / 0.080	18.8 / 0.740	500	20.6 / 0.811	690	25.1 / 0.988	940
16			1.52 / 0.060	2.03 / 0.080	19.8 / 0.780	560	21.6 / 0.850	760	26.1 / 1.028	1,010
19			1.52 / 0.060	2.03 / 0.080	20.9 / 0.823	630	22.7 / 0.894	840	27.2 / 1.071	1,110
20			2.03 / 0.080	2.03 / 0.080	22.6 / 0.890	720	24.4 / 0.961	950	28.9 / 1.138	1,240
24			2.03 / 0.080	2.03 / 0.080	25.6 / 1.008	910	27.4 / 1.079	1,170	31.9 / 1.256	1,480
30			2.03 / 0.080	2.03 / 0.080	27.0 / 1.063	1,030	28.8 / 1.134	1,300	33.3 / 1.311	1,630
37			2.03 / 0.080	2.03 / 0.080	29.1 / 1.146	1,210	30.9 / 1.217	1,500	35.4 / 1.394	1,860
44			2.03 / 0.080	2.03 / 0.080	32.6 / 1.283	1,500	34.4 / 1.354	1,830	38.9 / 1.531	2,220
60			2.03 / 0.080	2.79 / 0.110	36.1 / 1.421	1,870	37.9 / 1.492	2,240	43.9 / 1.728	2,820
91			2.79 / 0.110	2.79 / 0.110	44.6 / 1.756	2,860	46.4 / 1.827	3,310	52.4 / 2.063	4,010
2	16	0.76/0.030	1.14 / 0.045	1.52 / 0.060	10.0 / 0.394	140	11.8 / 0.465	240	15.2 / 0.598	350
3			1.14 / 0.045	1.52 / 0.060	10.5 / 0.413	160	12.3 / 0.484	270	15.7 / 0.618	380
4			1.14 / 0.045	1.52 / 0.060	11.5 / 0.453	190	13.3 / 0.524	310	16.7 / 0.657	430
5			1.14 / 0.045	1.52 / 0.060	12.5 / 0.492	230	14.3 / 0.563	360	17.7 / 0.697	490
6			1.52 / 0.060	1.52 / 0.060	14.3 / 0.563	290	16.1 / 0.634	440	19.5 / 0.768	590
7			1.52 / 0.060	1.52 / 0.060	14.3 / 0.563	300	16.1 / 0.634	450	19.5 / 0.768	600
8			1.52 / 0.060	1.52 / 0.060	15.5 / 0.610	350	17.3 / 0.681	510	20.7 / 0.815	670
10			1.52 / 0.060	2.03 / 0.080	18.0 / 0.709	470	19.8 / 0.780	650	24.3 / 0.957	890
12			1.52 / 0.060	2.03 / 0.080	18.6 / 0.732	510	20.4 / 0.803	700	24.9 / 0.980	940
14			1.52 / 0.060	2.03 / 0.080	19.5 / 0.768	570	21.3 / 0.839	770	25.8 / 1.016	1,020
16			1.52 / 0.060	2.03 / 0.080	20.6 / 0.811	640	22.4 / 0.882	850	26.9 / 1.059	1,110
19			2.03 / 0.080	2.03 / 0.080	22.8 / 0.898	780	24.6 / 0.969	1,010	29.1 / 1.146	1,300
20			2.03 / 0.080	2.03 / 0.080	23.5 / 0.925	820	25.3 / 0.996	1,060	29.8 / 1.173	1,360
24			2.03 / 0.080	2.03 / 0.080	26.6 / 1.047	1,030	28.4 / 1.118	1,300	32.9 / 1.295	1,630
30			2.03 / 0.080	2.03 / 0.080	28.1 / 1.106	1,180	29.9 / 1.177	1,470	34.4 / 1.354	1,810
37			2.03 / 0.080	2.03 / 0.080	30.3 / 1.193	1,390	32.1 / 1.264	1,700	36.6 / 1.441	2,060
44			2.03 / 0.080	2.03 / 0.080	33.9 / 1.335	1,720	35.7 / 1.406	2,060	40.2 / 1.583	2,460
60			2.03 / 0.080	2.79 / 0.110	37.6 / 1.480	2,160	39.4 / 1.551	2,540	45.4 / 1.787	3,140
91			2.79 / 0.110	2.79 / 0.110	46.5 / 1.831	3,300	48.3 / 1.902	3,770	54.3 / 2.138	4,500
2	14	0.76/0.030	1.14 / 0.045	1.52 / 0.060	10.7 / 0.421	160	12.5 / 0.492	280	15.9 / 0.626	390
3			1.14 / 0.045	1.52 / 0.060	11.3 / 0.445	190	13.1 / 0.516	310	16.5 / 0.650	430
4			1.14 / 0.045	1.52 / 0.060	12.4 / 0.488	240	14.2 / 0.559	370	17.6 / 0.693	500
5			1.52 / 0.060	1.52 / 0.060	14.2 / 0.559	310	16.0 / 0.630	460	19.4 / 0.764	600
6			1.52 / 0.060	1.52 / 0.060	15.4 / 0.606	370	17.2 / 0.677	530	20.6 / 0.811	680
7			1.52 / 0.060	1.52 / 0.060	15.4 / 0.606	380	17.2 / 0.677	540	20.6 / 0.811	690
8			1.52 / 0.060	2.03 / 0.080	16.7 / 0.657	440	18.5 / 0.728	620	23.0 / 0.906	840
10			1.52 / 0.060	2.03 / 0.080	19.5 / 0.768	590	21.3 / 0.839	790	25.8 / 1.016	1,040
12			1.52 / 0.060	2.03 / 0.080	20.1 / 0.791	650	21.9 / 0.862	850	26.4 / 1.039	1,110
14			2.03 / 0.080	2.03 / 0.080	22.2 / 0.874	780	24.0 / 0.945	1,010	28.5 / 1.122	1,290
16			2.03 / 0.080	2.03 / 0.080	23.4 / 0.921	870	25.2 / 0.992	1,110	29.7 / 1.169	1,400
19			2.03 / 0.080	2.03 / 0.080	24.7 / 0.972	980	26.5 / 1.043	1,230	31.0 / 1.220	1,540
20			2.03 / 0.080	2.03 / 0.080	25.4 / 1.000	1,040	27.2 / 1.071	1,300	31.7 / 1.248	1,610
24			2.03 / 0.080	2.03 / 0.080	28.7 / 1.130	1,300	30.5 / 1.201	1,590	35.0 / 1.378	1,940
30			2.03 / 0.080	2.03 / 0.080	30.4 / 1.197	1,500	32.2 / 1.268	1,810	36.7 / 1.445	2,180
37			2.03 / 0.080	2.03 / 0.080	32.8 / 1.291	1,780	34.6 / 1.362	2,110	39.1 / 1.539	2,500
44			2.03 / 0.080	2.79 / 0.110	36.8 / 1.449	2,190	38.6 / 1.520	2,560	44.6 / 1.756	3,160
60			2.03 / 0.080	2.79 / 0.110	40.9 / 1.610	2,790	42.7 / 1.681	3,200	48.7 / 1.917	3,850
91			2.79 / 0.110	2.79 / 0.110	50.4 / 1.984	4,240	52.2 / 2.055	4,750	58.2 / 2.291	5,530

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

Type P Power Control Cable (0.6/1kV) Fire Resistant Multi Conductor
0.6/1kV FS-CPN, 0.6/1kV FS-CPNB, 0.6/1kV FS-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	12	0.76/0.030	1.14 / 0.045	1.52 / 0.060	11.6 / 0.457	210	13.4 / 0.528	330	16.8 / 0.661	450
3			1.14 / 0.045	1.52 / 0.060	12.3 / 0.484	250	14.1 / 0.555	380	17.5 / 0.689	500
4			1.52 / 0.060	1.52 / 0.060	14.2 / 0.559	330	16.0 / 0.630	480	19.4 / 0.764	620
5			1.52 / 0.060	1.52 / 0.060	15.5 / 0.610	400	17.3 / 0.681	560	20.7 / 0.815	710
6			1.52 / 0.060	2.03 / 0.080	16.8 / 0.661	470	18.6 / 0.732	640	23.1 / 0.909	870
7			1.52 / 0.060	2.03 / 0.080	16.8 / 0.661	490	18.6 / 0.732	670	23.1 / 0.909	890
8			1.52 / 0.060	2.03 / 0.080	18.2 / 0.717	570	20.0 / 0.787	760	24.5 / 0.965	1,000
10			2.03 / 0.080	2.03 / 0.080	22.4 / 0.882	820	24.2 / 0.953	1,050	28.7 / 1.130	1,330
12			2.03 / 0.080	2.03 / 0.080	23.1 / 0.909	900	24.9 / 0.980	1,140	29.4 / 1.157	1,430
14			2.03 / 0.080	2.03 / 0.080	24.3 / 0.957	1,010	26.1 / 1.028	1,260	30.6 / 1.205	1,560
16			2.03 / 0.080	2.03 / 0.080	25.7 / 1.012	1,140	27.5 / 1.083	1,400	32.0 / 1.260	1,720
19			2.03 / 0.080	2.03 / 0.080	27.1 / 1.067	1,290	28.9 / 1.138	1,570	33.4 / 1.315	1,900
20			2.03 / 0.080	2.03 / 0.080	27.9 / 1.098	1,370	29.7 / 1.169	1,650	34.2 / 1.346	1,990
24			2.03 / 0.080	2.03 / 0.080	31.6 / 1.244	1,710	33.4 / 1.315	2,030	37.9 / 1.492	2,410
30			2.03 / 0.080	2.03 / 0.080	33.4 / 1.315	1,980	35.2 / 1.386	2,320	39.7 / 1.563	2,720
37			2.03 / 0.080	2.79 / 0.110	36.1 / 1.421	2,360	37.9 / 1.492	2,730	43.9 / 1.728	3,310
44			2.03 / 0.080	2.79 / 0.110	40.6 / 1.598	2,920	42.4 / 1.669	3,330	48.4 / 1.906	3,970
60			2.79 / 0.110	2.79 / 0.110	46.6 / 1.835	3,900	48.4 / 1.906	4,360	54.4 / 2.142	5,090
91			2.79 / 0.110	2.79 / 0.110	55.6 / 2.189	5,670	57.4 / 2.260	6,230	63.4 / 2.496	7,090
2	10	0.76/0.030	1.14 / 0.045	1.52 / 0.060	13.1 / 0.516	270	14.9 / 0.587	410	18.3 / 0.720	550
3			1.52 / 0.060	1.52 / 0.060	14.6 / 0.575	360	16.4 / 0.646	510	19.8 / 0.780	660
4			1.52 / 0.060	2.03 / 0.080	15.9 / 0.626	440	17.7 / 0.697	610	22.2 / 0.874	820
5			1.52 / 0.060	2.03 / 0.080	17.4 / 0.685	540	19.2 / 0.756	720	23.7 / 0.933	950
6			1.52 / 0.060	2.03 / 0.080	19.0 / 0.748	640	20.8 / 0.819	840	25.3 / 0.996	1,080
7			1.52 / 0.060	2.03 / 0.080	19.0 / 0.748	680	20.8 / 0.819	870	25.3 / 0.996	1,120
8			1.52 / 0.060	2.03 / 0.080	20.6 / 0.811	790	22.4 / 0.882	1,000	26.9 / 1.059	1,260
10			2.03 / 0.080	2.03 / 0.080	25.5 / 1.004	1,120	27.3 / 1.075	1,380	31.8 / 1.252	1,690
12			2.03 / 0.080	2.03 / 0.080	26.3 / 1.035	1,240	28.1 / 1.106	1,510	32.6 / 1.283	1,830
14			2.03 / 0.080	2.03 / 0.080	27.6 / 1.087	1,390	29.4 / 1.157	1,670	33.9 / 1.335	2,010
16			2.03 / 0.080	2.03 / 0.080	29.1 / 1.146	1,560	30.9 / 1.217	1,860	35.4 / 1.394	2,210
19			2.03 / 0.080	2.03 / 0.080	30.7 / 1.209	1,780	32.5 / 1.280	2,100	37.0 / 1.457	2,470
20			2.03 / 0.080	2.03 / 0.080	31.6 / 1.244	1,890	33.4 / 1.315	2,200	37.9 / 1.492	2,580
24			2.03 / 0.080	2.03 / 0.080	35.9 / 1.413	2,360	37.7 / 1.484	2,720	42.2 / 1.661	3,150
30			2.03 / 0.080	2.79 / 0.110	38.1 / 1.500	2,770	39.9 / 1.571	3,150	45.9 / 1.807	3,760
37			2.03 / 0.080	2.79 / 0.110	41.2 / 1.622	3,310	43.0 / 1.693	3,720	49.0 / 1.929	4,380
44			2.79 / 0.110	2.79 / 0.110	47.9 / 1.886	4,250	49.7 / 1.957	4,730	55.7 / 2.193	5,480
60			2.79 / 0.110	2.79 / 0.110	53.2 / 2.094	5,450	55.0 / 2.165	5,980	61.0 / 2.402	6,810
91			2.79 / 0.110	3.56 / 0.140	63.6 / 2.504	7,970	65.4 / 2.575	8,610	72.9 / 2.870	9,840

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