

Voltage Drop – Quick Calculator
Divide A.m value by Amps to obtain metres or Vice Versa

230 Volts		SINGLE PHASE Cables				
Cond size	mV/Am (Vc) @60 deg	1% Vdrop A.m	2% Vdrop A.m	3% Vdrop A.m	4% Vdrop A.m	5% Vdrop A.m
1	49.1	47	94	141	187	234
1.5	31.5	73	146	219	292	365
2.5	17.2	134	267	401	535	668
4	10.7	216	431	647	862	1078
6	7.14	322	644	967	1289	1611
10	4.24	543	1085	1628	2170	2713
16	2.67	862	1724	2586	3448	4310
25	1.70	1355	2709	4064	5419	6773
35	1.22	1879	3757	5636	7514	9393
50	0.91	2527	5054	7582	10109	12637

400 Volts		Three Phase Multicore Cables				
Cond size	mV/Am (Vc) @60 deg	1% Vdrop A.m	2% Vdrop A.m	3% Vdrop A.m	4% Vdrop A.m	5% Vdrop A.m
1	42.5	94	188	282	376	471
1.5	27.3	147	293	440	586	733
2.5	14.9	268	537	805	1074	1342
4	9.24	433	866	1299	1732	2165
6	6.18	647	1294	1942	2589	3236
10	3.67	1090	2180	3270	4360	5450
16	2.31	1732	3463	5195	6926	8658
25	1.47	2721	5442	8163	10884	13605
35	1.06	3774	7547	11321	15094	18868
50	0.79	5063	10127	15190	20253	25316
70	0.556	7194	14388	21583	28777	35971
95	0.413	9685	19370	29056	38741	48426
120	0.337	11869	23739	35608	47478	59347
150	0.285	14035	28070	42105	56140	70175
185	0.242	16529	33058	49587	66116	82645
240	0.204	19608	39216	58824	78431	98039
300	0.182	21978	43956	65934	87912	109890
400	0.165	24242	48485	72727	96970	121212
500	0.154	25974	51948	77922	103896	129870

400 Volts		Three Phase SDI Cables				
Cond size	mV/Am (Vc) @60 deg	1% Vdrop A.m	2% Vdrop A.m	3% Vdrop A.m	4% Vdrop A.m	5% Vdrop A.m
16	2.31	1732	3463	5195	6926	8658
25	1.47	2721	5442	8163	10884	13605
35	1.07	3738	7477	11215	14953	18692
50	0.801	4994	9988	14981	19975	24969
70	0.571	7005	14011	21016	28021	35026
95	0.431	9281	18561	27842	37123	46404
120	0.358	11173	22346	33519	44693	55866
150	0.309	12945	25890	38835	51780	64725
185	0.27	14815	29630	44444	59259	74074
240	0.235	17021	34043	51064	68085	85106
300	0.215	18605	37209	55814	74419	93023
400	0.2	20000	40000	60000	80000	100000
500	0.19	21053	42105	63158	84211	105263
630	0.18	22222	44444	66667	88889	111111

Cables less than 35mm² are same for SDI & Multicore

These values are for guidance only – Calculations shall be performed to confirm values for each installation

Fault Loop Impedance

Taken from Tables 8.1 & B1 of AS 3000:2007

Maximum Zs Values and Maximum Circuit Lengths

Active size	Earth Size	Protective Device Rating	Maximum values Zs Ω					Maximum Circuit Length Metres			
			Circuit Breakers 0.4S			Fuses		Circuit Breakers			Fuses
			Type B	Type C	Type D	0.4	0.5	Type B	Type C	Type D	
1	1	6	9.58	5.11	3.07	11.5	15.33	170	91	55	204
1	1	10	5.75	3.07	1.84	6.39	9.20	102	55	33	114
1.5	1.5	10	5.75	3.07	1.84	6.39	9.20	153	82	49	170
1.5	1.5	16	3.59	1.92	1.15	3.07	5	96	51	31	82
2.5	2.5	16	3.59	1.92	1.15	3.07	5	160	85	51	136
2.5	2.5	20	2.88	1.53	0.92	2.09	3.59	128	68	41	93
4	2.5	25	2.30	1.23	0.74	1.64	2.71	126	67	40	90
4	2.5	32	1.80	0.96	0.58	1.28	2.19	98	52	31	70
6	2.5	40	1.44	0.77	0.46	0.96	1.64	90	48	29	60
10	4	50	1.15	0.61	0.37	0.72	1.28	117	62	37	73
16	6	63	0.91	0.49	0.29	0.55	0.94	142	76	45	85
16	6	80	0.72	0.38	0.23	0.38	0.68	112	59	36	59
25	6	80	0.72	0.38	0.23	0.38	0.68	124	66	40	66
25	6	100	0.58	0.31	0.18	0.27	0.48	99	53	32	47
35	10	100	0.58	0.31	0.18	0.27	0.48	159	85	51	75
35	10	125	0.46	0.25	0.15	0.21	0.43	127	68	41	58
50	16	125	0.46	0.25	0.15	0.21	0.43	198	106	63	90
50	16	160	0.36	0.19	0.12	0.16	0.30	155	83	50	71
70	25	160	0.36	0.19	0.12	0.16	0.30	235	126	75	108
70	25	200	0.29	0.15	0.09	0.13	0.23	188	100	60	84