

FRA-70 Lighting Voltage Drop Calculations

Voltage: 480
 FRA-70R
 1/29/2019

Wire Factor Used (Three - No. 2 AWG Wires) 0.3252 ohms/mft/1000
 Wire Factor Used (Three - No. 4 AWG Wires) 0.5174 ohms/mft/1000
 Wire Factor Used (Three - No. 1/0 AWG Wires) 0.2042 ohms/mft/1000

PS "B"
 Circuit: D

VOLTAGE DROP IN A SECTION = AMPS IN AND BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

From	Section To	Feet	Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
			At Point	Accum.			In Section	Accum.		
BD-12	BD-11	160	0.69	0.69	110	4	0.06	2.53	0.53	BD-12
BD-11	EX.PB	186	0.69	1.38	257	4	0.13	2.47	0.51	BD-11
EX.PB	EX.PB	52	0	1.38	72	4	0.04	2.34	0.49	EX.PB
BD-10	EX.PB	149	0.69	0.69	103	4	0.05	2.35	0.49	BD-10
EX.PB	BD-9	143	0	2.07	296	4	0.15	2.30	0.48	EX.PB
BD-9	EX.PB	32	2.15	4.22	135	4	0.07	2.15	0.45	BD-9
EX.PB	EX.PB	161	0	4.22	679	4	0.35	2.08	0.43	EX.PB
BD-8	EX.PB	265	0.69	0.69	183	4	0.09	1.82	0.38	BD-8
EX.PB	EX.PB	62	0	4.91	304	4	0.16	1.72	0.36	EX.PB
BD-7	EX.PB	28	0.69	0.69	19	4	0.01	1.58	0.33	BD-7
EX.PB	EX.PB	59	0	5.6	330	4	0.17	1.57	0.33	EX.PB
BD-6	EX.PB	187	0.69	0.69	129	4	0.07	1.46	0.30	BD-6
EX.PB	EX.PB	112	0	6.29	704	4	0.36	1.40	0.29	EX.PB
BD-5	BD-4	145	0.69	0.69	100	4	0.05	1.13	0.24	BD-5
BD-4	EX.PB	70	0.69	1.38	97	4	0.05	1.08	0.23	BD-4
EX.PB	P.S. 'B'	260	0	7.67	1994	4	1.03	1.03	0.21	EX.PB
BD-1	P.S. 'B'	130	2.15	2.15	280	4	0.14	0.14	0.03	BD-1
BD-3	BD-2	303	2.15	2.15	651	4	0.34	0.78	0.16	BD-3
BD-2	PB-6	23	2.15	4.3	99	4	0.05	0.44	0.09	BD-2
PB-6	PB-5	92	0	4.3	396	4	0.20	0.39	0.08	PB-6
PB-5	P.S. 'B'	85	0	4.3	366	4	0.19	0.19	0.04	PB-5

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 Wire Factor Used (Three - No. 1/0 AWG Wires) 0.2042 ohms/mft/1000

PS "B"
 Circuit: E

VOLTAGE DROP IN A SECTION = AMPS IN AND BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

From	Section To	Feet	Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
			At Point	Accum.			In Section	Accum.		
BE-12	BE-11	182	0.3	0.3	55	4	0.03	3.52	0.73	BE-12
BE-11	BE-10	207	0.3	0.6	124	4	0.06	3.49	0.73	BE-11
BE-10	BE-9	213	0.3	0.9	192	4	0.10	3.43	0.71	BE-10
BE-9	BE-8	206	0.3	1.2	247	4	0.13	3.33	0.69	BE-9
BE-8	PB-10	65	0.3	1.5	98	4	0.05	3.20	0.67	BE-8
PB-10	PB-9	84	0	1.5	126	4	0.07	3.15	0.66	PB-10
PB-9	BE-7	154	0	1.5	231	4	0.12	3.08	0.64	PB-9
BE-7	BE-6	157	0.3	1.8	283	4	0.15	2.96	0.62	BE-7
BE-6	SJB-10	24	0.3	2.1	50	4	0.03	2.82	0.59	BE-6
BE-16	BE-15	57	0.15	0.15	9	4	0.00	2.80	0.58	BE-16
BE-15	SJB-10	49	0.15	0.3	15	4	0.01	2.80	0.58	BE-15
BE-14	SJB-10	17	0.15	0.15	3	4	0.00	2.79	0.58	BE-14
SJB-10	BE-5	154	0	2.55	393	4	0.20	2.79	0.58	SJB-10
BE-5	BE-4	169	0.3	2.85	482	4	0.25	2.59	0.54	BE-5
BE-4	BE-3	169	0.3	3.15	532	4	0.28	2.34	0.49	BE-4
BE-3	BE-2	160	0.3	3.45	552	4	0.29	2.06	0.43	BE-3
BE-2	BE-1	161	0.3	3.75	604	4	0.31	1.78	0.37	BE-2
BE-1	PB-8	313	0.3	4.05	1268	4	0.66	1.47	0.31	BE-1
PB-8	PB-7	155	0	4.05	628	4	0.32	0.81	0.17	PB-8
PB-7	PB-6	80	0	4.05	324	4	0.17	0.49	0.10	PB-7
PB-6	PB-5	92	0	4.05	373	4	0.19	0.32	0.07	PB-6
PB-5	P.S. 'B'	60	0	4.05	243	4	0.13	0.13	0.03	PB-5
BE-13	P.S. 'B'	312	2.15	2.15	671	4	0.35	0.35	0.07	BE-13

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Wire Factor Used (Three - No. 6 AWG Wires) 0.982 ohms/mft/1000

PS "C"
Circuit: H

VOLTAGE DROP IN A SECTION = AMPS IN AND BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

From	Section	To	Feet	Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
				At Point	Accum.			In Section	Accum.		
CH-12	CH-11		157	0.3	0.3	47	4	0.02	4.56	0.95	CH-12
CH-11	CH-10		157	0.3	0.6	94	4	0.05	4.54	0.95	CH-11
CH-10	CH-9		166	0.3	0.9	149	4	0.08	4.49	0.94	CH-10
CH-9	CH-8		170	0.3	1.2	204	4	0.11	4.41	0.92	CH-9
CH-8	CH-7		139	0.3	1.5	209	4	0.11	4.31	0.90	CH-8
CH-7	CH-6		233	0.3	1.8	419	4	0.22	4.20	0.87	CH-7
CH-6	CH-5		146	0.3	2.1	307	4	0.16	3.98	0.83	CH-6
CH-5	CH-4		163	0.3	2.4	391	4	0.20	3.82	0.80	CH-5
CH-4	SJB-11		184	0.3	2.7	497	4	0.26	3.62	0.75	CH-4
CH-44	CH-43		79	0.15	0.15	12	6	0.01	3.78	0.79	CH-44
CH-43	CH-42		80	0.15	0.3	24	6	0.02	3.77	0.79	CH-43
CH-42	CH-41		82	0.15	0.45	37	6	0.04	3.75	0.78	CH-42
CH-41	CH-40		77	0.15	0.6	46	6	0.05	3.71	0.77	CH-41
CH-40	CH-39		81	0.15	0.75	61	6	0.06	3.67	0.76	CH-40
CH-39	CH-38		82	0.15	0.9	74	6	0.07	3.61	0.75	CH-39
CH-38	CH-37		70	0.15	1.05	74	6	0.07	3.53	0.74	CH-38
CH-37	CH-36		62	0.15	1.2	74	6	0.07	3.46	0.72	CH-37
CH-36	SJB-11		19	0.15	1.35	26	6	0.03	3.39	0.71	CH-36
CH-35	SJB-11		55	0.15	0.15	8	6	0.01	3.37	0.70	CH-35
SJB-11	CH-3		33	0	4.2	139	4	0.07	3.36	0.70	SJB-11
CH-3	SJB-12		215	0.3	4.5	968	4	0.50	3.29	0.69	CH-3
CH-34	CH-33		75	0.15	0.15	11	6	0.01	3.08	0.64	CH-34
CH-33	CH-32		70	0.15	0.3	21	6	0.02	3.07	0.64	CH-33
CH-32	JB		23	0.15	0.45	10	6	0.01	3.05	0.63	CH-32
CH-31	CH-30		83	0.15	0.15	12	6	0.01	3.06	0.64	CH-31
CH-30	JB		53	0.15	0.3	16	6	0.02	3.05	0.64	CH-30
JB	CH-29		27	0	0.75	20	6	0.02	3.04	0.63	JB
CH-29	CH-28		78	0.15	0.9	70	6	0.07	3.02	0.63	CH-29
CH-28	CH-27		83	0.15	1.05	87	6	0.09	2.95	0.61	CH-28
CH-27	SJB-12		60	0.15	1.2	72	6	0.07	2.86	0.60	CH-27
CH-21	CH-22		72	0.15	0.15	11	6	0.01	2.94	0.61	CH-21
CH-22	CH-23		69	0.15	0.3	21	6	0.02	2.93	0.61	CH-22
CH-23	JB		14	0.15	0.45	6	6	0.01	2.91	0.61	CH-23
JB	JB		15	0	0.45	7	6	0.01	2.90	0.60	JB
CH-24	JB		39	0.15	0.15	6	6	0.01	2.90	0.60	CH-24
JB	CH-25		32	0	0.6	19	6	0.02	2.89	0.60	JB
CH-25	CH-26		74	0.15	0.75	56	6	0.05	2.88	0.60	CH-25
CH-26	SJB-12		34	0.15	0.9	31	6	0.03	2.82	0.59	CH-26
SJB-12	SJB-6		206	0	6.6	1360	6	1.34	2.79	0.58	SJB-12
CH-2	CH-1		182	0.3	0.3	55	4	0.03	1.56	0.32	CH-2
CH-1	JB		115	0.3	0.6	69	4	0.04	1.53	0.32	CH-1
CH-14	CH-13		80	0.15	0.15	12	6	0.01	1.48	0.31	CH-14
CH-13	SJB-6		46	0.15	0.3	14	6	0.01	1.47	0.31	CH-13
CH-15	CH-16		74	0.15	0.15	11	6	0.01	1.58	0.33	CH-15
CH-16	CH-17		73	0.15	0.3	22	6	0.02	1.57	0.33	CH-16
CH-17	CH-18		76	0.15	0.45	34	6	0.03	1.55	0.32	CH-17
CH-18	JB		41	0.15	0.6	25	6	0.02	1.52	0.32	CH-18
CH-20	CH-19		78	0.15	0.15	12	6	0.01	1.52	0.32	CH-20
CH-19	JB		45	0.15	0.3	14	6	0.01	1.50	0.31	CH-19
JB	SJB-6		46	0	1.5	69	4	0.04	1.49	0.31	JB
SJB-6	PB-13		205	0	8.4	1722	4	0.89	1.46	0.30	SJB-6
PB-13	P.S. 'C'		130	0	8.4	1092	4	0.57	0.57	0.12	PB-13

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Wire Factor Used (Three - No. 2 AWG Wires) 0.3252 ohms/mft/1000
 Wire Factor Used (Three - No. 4 AWG Wires) 0.5174 ohms/mft/1000
 Wire Factor Used (Three - No. 1/0 AWG Wires) 0.2042 ohms/mft/1000

PS "C"
 Circuit: J

VOLTAGE DROP IN A SECTION = AMPS IN AND BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

From	Section To	Feet	Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
			At Point	Accum.			In Section	Accum.		
CJ-14	CJ-13	226	1.38	1.38	312	4	0.16	10.76	2.24	CJ-14
CJ13	CJ-12	211	1.38	2.76	582	4	0.30	10.60	2.21	CJ13
CJ-12	CJ-11	217	1.38	4.14	898	4	0.46	10.30	2.15	CJ-12
CJ-11	CJ-10	209	1.38	5.52	1154	4	0.60	9.83	2.05	CJ-11
CJ-10	CJ-9	204	0.69	6.21	1267	4	0.66	9.23	1.92	CJ-10
CJ-9	MJB-3	172	0.69	6.9	1187	4	0.61	8.58	1.79	CJ-9
CJ-8	MJB-3	51	0.69	0.69	35	4	0.02	7.98	1.66	CJ-8
MJB-3	MJB-2	59	0	7.59	448	4	0.23	7.97	1.66	MJB-3
CJ-7	CJ-6	135	0.54	0.54	73	4	0.04	9.07	1.89	CJ-7
CJ-6	CJ-5	172	0.54	1.08	186	4	0.10	9.03	1.88	CJ-6
CJ-5	CJ-4	180	0.54	1.62	292	4	0.15	8.93	1.86	CJ-5
CJ-4	BJB-1	209	0.54	2.16	451	4	0.23	8.78	1.83	CJ-4
BJB-1	CJ-3	105	0	2.16	227	4	0.12	8.55	1.78	BJB-1
CJ-3	CJ-2	207	0.54	2.7	559	4	0.29	8.43	1.76	CJ-3
CJ-2	CJ-1	200	0.54	3.24	648	4	0.34	8.14	1.70	CJ-2
CJ-1	MJB-2	37	0.54	3.78	140	4	0.07	7.81	1.63	CJ-1
MJB-2	SJB-5	512	0	11.37	5821	4	3.01	7.73	1.61	MJB-2
CJ-24	CJ-23	235	1.38	1.38	324	4	0.17	14.03	2.92	CJ-24
CJ-23	CJ-22	207	1.38	2.76	571	4	0.30	13.86	2.89	CJ-23
CJ-22	CJ-21	285	1.38	4.14	1180	4	0.61	13.57	2.83	CJ-22
CJ-21	CJ-20	210	1.38	5.52	1159	4	0.60	12.96	2.70	CJ-21
CJ-20	CJ-19	208	1.38	6.9	1435	4	0.74	12.36	2.57	CJ-20
CJ-19	CJ-18	185	1.38	8.28	1532	4	0.79	11.61	2.42	CJ-19
CJ-18	CJ-17	189	1.38	9.66	1826	4	0.94	10.82	2.25	CJ-18
CJ-17	EX. MJB	171	1.38	11.04	1888	4	0.98	9.88	2.06	CJ-17
CJ-27	CJ-26	195	0.69	0.69	135	4	0.07	9.57	1.99	CJ-27
CJ-26	CJ-25	188	0.69	1.38	259	4	0.13	9.50	1.98	CJ-26
CJ-25	EX.MJB	440	0.69	2.07	911	4	0.47	9.37	1.95	CJ-25
EX. MJB	CJ-16	79	0	13.11	1036	4	0.54	8.90	1.85	EX. MJB
CJ-16	CJ-15	270	1.38	14.49	3912	4	2.02	8.36	1.74	CJ-16
CJ-15	SJB-5	197	1.38	15.87	3126	4	1.62	6.34	1.32	CJ-15
SJB-5	PB-13	205	0	27.24	5584	4	2.89	4.72	0.98	SJB-5
PB-13	P.S. 'C'	130	0	27.24	3541	4	1.83	1.83	0.38	PB-13

