CHART NO. 3 - SELECTING A SUITABLE WIRE GAUGE BASED ON AMPERAGE LOAD AND LENGTH OF THE WIRE

RBE Electronics

WIRE GAUGE TABLES

American Wire Gauge (AWG) sizes may be determined by measuring the diameter of the conductor (the bare wire) with the insulation removed. Refer to the Wire gauge Diameter Table for dimensions. When choosing wire gauge, the distance the wire must run and the amperage it will be expected to carry must be determined first. Refer to the Wire gauge Selection Table. Note that you can always use thicker wire (lower gauge number) than is recommended.

METRIC-TO-AWG CONVERSION TABLE	
Metric Size mm2	**AWG Size**
0.5	20
0.8	18
1.0	16
2.0	14
3.0	12
5.0	10
8.0	8
13.0	6
19.0	4
32.0	2
52.0	0

WIRE GAUGE DIAMETER TABLE	
American Wire gauge	**Wire Diameter in inches**
20	0.03196118
18	0.040303
16	0.0508214
14	0.064084
12	0.08080810
10	0.10189
8	0.128496
6	0.16202
5	0.18194

4	0.20431
3	0.22942
2	0.25763
1	0.2893
0	0.32486
00	0.3648

WIRE GAUGE SELECTION TABLE										
Circuit Amperes		**Circuit Watts**		**Wire gauge (for length in feet)**						
6V	**12V**	**6V**	**12V**	**3'**	**5'**	**7'**	**10'**	**15'**	**20'**	**25'**
0 to 2.5	0 to 5	15	30	18	18	18	18	18	18	18
3.0	6	18	36	18	18	18	18	18	18	16
3.5	7	21	42	18	18	18	18	18	18	16
4.0	8	24	48	18	18	18	18	18	16	16
5.0	10	30	60	18	18	18	18	16	16	16
5.5	11	33	66	18	18	18	18	16	16	14
6.0	12	36	72	18	18	18	18	16	16	14
7.5	15	45	90	18	18	18	18	14	14	12
9.0	18	54	108	18	18	16	16	14	14	12
10	20	60	120	18	18	16	16	14	12	10
11	22	66	132	18	18	16	16	12	12	10
12	24	72	144	18	18	16	16	12	12	10
15	30	90	180	18	16	16	14	10	10	10
20	40	120	240	18	16	14	12	10	10	8
25	50	150	300	16	14	12	12	10	10	8
50	100	300	600	12	12	10	10	6	6	4
75	150	450	900	10	10	8	8	4	4	2
100	200	600	1200	10	8	8	6	4	4	2

Find the amperes or watts the circuit is expected to carry on the left and the distance the wiring must run at the top - follow the columns until they intersect - for example, a 12 volt circuit which is 15 feet long and carries 10 amperes should use at least 16 gauge wire.