



**AWG** – Also called American Wire Gauge - is a standard method of denoting wire diameter, by measuring the diameter of the conductor (bare wire) with the insulation removed. VIAIR recommends the following gauge wire be used, depending on the length of wire run (with all bends and routing included in total length), and the maximum amp draw of the system.

<b>AWG – 12 Volt Circuits</b>									
Total Amps	Length of wire from battery to compressor and back to battery (in feet)								
	10	15	20	25	30	40	50	60	70
5	18	16	14	12	12	10	10	10	8
10	14	12	10	10	10	8	6	6	6
15	12	10	10	8	8	6	6	6	4
20	10	10	8	6	6	6	4	4	2
25	10	8	6	6	6	4	4	2	2
30	10	8	6	6	4	4	2	2	1
40	8	6	6	4	4	2	2	1	0
50	6	6	4	4	2	2	1	0	2/0
60	6	4	4	2	2	1	0	2/0	3/0

<b>AWG – 24 Volt Circuits</b>									
Total Amps	Length of wire from battery to compressor and back to battery (in feet)								
	10	15	20	25	30	40	50	60	70
5	18	18	18	16	16	14	12	12	12
10	18	16	14	12	12	10	10	10	8
15	16	14	12	12	10	10	8	8	8
20	14	12	10	10	10	8	6	6	6
25	12	12	10	10	8	6	6	6	4
30	12	10	10	8	8	6	6	4	4
40	10	10	8	6	6	6	4	4	2
50	10	8	6	6	6	4	4	2	2
60	10	8	6	6	4	4	2	2	1

**Ground Wire** – The ground lead on the compressor should not be extended (if possible). Always connect ground leads directly to the chassis (frame) of the vehicle. Any other grounding method may result in amp spikes that may damage the compressor motor, as well as sporadic & undesired operation.

**Wire Type** - Fine stranded copper wire is the item of choice (more strands in the wire result in a better, more flexible, cable). The insulation should be approved for automotive applications. This means that the wire is relatively immune to the adverse effects of petroleum products (gas, diesel, oil, brake fluid, radiator coolant, etc.).

**Relays** – Install relays that are rated properly compared to amp draw of compressor(s). Always install relays as close to the battery as possible. Relays also help to increase the life expectancy of pressure switches in the system.

**SAFETY WARNING:**

Failure to use wiring of adequate gauge may result in irreparable damage to the compressor, melted wires, and may cause a fire. Improper installation is not covered by VIAIR Manufacturer Defect Warranty. Failure to adhere to these recommendations and installation procedures can ensure decreased performance, shortened life expectancy of the compressor, as well as possible damage to a vehicle's electrical system. *Following the wiring gauge recommendations above will ensure an acceptable voltage drop of no more than 3% in 12-volt & 24-volt circuits.*