Wire & Cable

The gauge of cable, number of conductors and type of insulation is determined by its application (i.e., the operating conditions and electrical load to be carried). Wiring cable, especially when applying to automobiles or heavy, off road equipment must have flexible characteristics to withstand constant vibrations and adverse operating conditions; it should not become stiff and brittle when subjected to heat or cold. Corrosion, oil, gasoline, battery acids, etc must not damage it.

Selecting the Correct Cable Gauge Size

Considerable voltage drop will be encountered should the load, e.g. lamps, starter, etc. not be in proper relation to the chosen gauge size. For instance, a 10% drop in battery voltage to the lamps will result in a 30% loss in candlepower output. These might seem like academic figures, however, in practice the effects of voltage drop are very evident in an inefficient electrical system.

Measure Cable Length Required

Determine the length of cable needed to reach from the battery to the most distant electrical unit of the circuit. (Return circuit has been allowed for in the chart, which applies to chassis grounded returns. For two-wire circuits, use total length of both cables, or the double length to most distant electrical unit.)

Total Amperes or Candlepower

Total Candlepower – Total the maximum candlepower to be used in the circuit. Locate the closest corresponding figure in the candlepower column of the chart.

Total Amperes – If the approximate total amperes load in a circuit is known, locate the corresponding amperes (approx.)

Determining Gauge of Cable

Read across on the line representing the candlepower or the amperes of the circuit to the correct foot-length column. This figure indicates the proper gauge of cable to be used throughout the circuit.

Recommended Cable Sizes for Replacement or Additional Electrical Unit Installations

Original equipment cable sizes on some vehicles may vary slightly from recommendations due to special electrical system design. This chart applies to chassis grounded return systems. For two-wire circuits, use total length of both cables, or double length to most distant electrical unit.

Wire & Cable Guide

12-Volt System — *** Total Length of Cable in Circuit from Battery to Most Distant Electrical Unit**

Amperes (approx.)	Candle Power	*10' (3m)	*20' (6m)	*30' (9m)	*40' (12m)	*50' (15m)	*60' (18m)	*70' (21m)	*80' (24m)	*90' (27m)	*100' (30m)
1	6	18GA	18GA	18GA	18GA	18GA	18GA	18GA	18GA	18GA	18GA
1.5	10	18GA	18GA	18GA	18GA	18GA	18GA	18GA	18GA	18GA	18GA
2	16	18GA	18GA	18GA	18GA	18GA	18GA	18GA	16GA	16GA	16GA
3	24	18GA	18GA	18GA	18GA	18GA	16GA	16GA	16GA	14GA	14GA
4	30	18GA	18GA	18GA	16GA	16GA	16GA	14GA	14GA	14GA	12GA
5	40	18GA	18GA	18GA	16GA	14GA	14GA	14GA	12GA	12GA	12GA
6	50	18GA	18GA	16GA	16GA	14GA	14GA	12GA	12GA	12GA	12GA
7	60	18GA	18GA	16GA	14GA	14GA	12GA	12GA	12GA	10GA	10GA
8	70	18GA	16GA	16GA	14GA	12GA	12GA	12GA	10GA	10GA	10GA
10	80	18GA	16GA	14GA	12GA	12GA	12GA	10GA	10GA	10GA	10GA
11	90	18GA	16GA	14GA	12GA	12GA	10GA	10GA	10GA	10GA	8GA
12	100	18GA	16GA	14GA	12GA	12GA	10GA	10GA	10GA	8GA	8GA
15	120	18GA	14GA	12GA	12GA	10GA	10GA	10GA	8GA	8GA	8GA
18	140	16GA	14GA	12GA	10GA	10GA	8GA	8GA	8GA	8GA	8GA
20	160	16GA	12GA	12GA	10GA	10GA	8GA	8GA	8GA	8GA	6GA
22	180	16GA	12GA	10GA	10GA	8GA	8GA	8GA	8GA	6GA	6GA
24	200	16GA	12GA	10GA	10GA	8GA	8GA	8GA	6GA	6GA	6GA
36	–	14GA	10GA	8GA	8GA	8GA	6GA	6GA	6GA	4GA	4GA
50	–	12GA	10GA	8GA	6GA	6GA	4GA	4GA	4GA	2GA	2GA
100	–	10GA	6GA	4GA	4GA	2GA	2GA	1GA	1GA	1/0GA	1/0GA
150	–	8GA	4GA	2GA	2GA	1GA	1/0GA	1/0GA	2/0GA	2/0GA	2/0GA
200	–	6GA	4GA	2GA	1GA	1/0GA	2/0GA	3/0GA	3/0GA	3/0GA	4/0GA

Wire & Cable

GENERAL INFORMATION

Matching Battery Cable to Equipment

	Typical Wire Size (GA)									
Equipment/Vehicle Type	**10GA**	**8GA**	**6GA**	**4GA**	**2GA**	**1GA**	**1/0GA**	**2/0GA**	**3/0GA**	**4/0GA**
Motorcycle	✔	✔	✔							
Garden/Lawn Tractor		✔	✔	✔						
Small Car, RV			✔	✔						
Mid-Size Car				✔	✔					
Full-Size Car, Van					✔	✔				
Tractor							✔			
Light Truck							✔			
Construction							✔	✔	✔	
Heavy-Duty Tractor								✔	✔	
Truck								✔	✔	
Bus								✔	✔	
Extra Heavy-Duty										✔

GA vs. Metric Wire Sizes

Typical Wire Size (GA)	Approx Metric Value
22GA	0.35mm²
20GA	0.50mm²
18GA	0.75mm²
16GA	1mm²
14GA	2mm²
12GA	3mm²
10GA	4-5mm²
8GA	6-8mm²
6GA	9-13mm²
4GA	14-21mm²
2GA	22-35mm²
1GA	36-42mm²
1/0GA	43-53mm²
2/0GA	54-68mm²
3/0GA	69-86mm²
4/0GA	87-107mm²

(Some metric values are expressed as a range and may vary by region)

*NEW

What's New?

- *Wire Spool Racks*
- *Booster Cable Cord*
- *RV Cable*

Expanded offering on:

- *GPT Wire*
- *TEW Wire*
- *Battery Cable*
- *Welding Cable*
- *Extension Cord Products*
- *Multi Conductor Cable*
- *Trailer Cable*