Power Supplies

Wire Gauge Chart

10 Series

RUTHERFORD CONTROLS

In or Out... we make it Easy!®

Determining Wire Gauge

Example:
Power supply voltage equals **12 volts.** Load equals 3 electro-magnetic locks. Each lock requires **0.280 amps** of current.

Total current draw equals (3 x 0.280 = 0.840 amps). Round off current to **1 Amp.** (Always round off in an upward direction.) Distance from farthest electromagnetic lock equals **100 feet.** Use the 12V chart and locate the 1.00 Amp column along the top of the chart. Select the distance in left column closest to the distance of the farthest lock. The wire gauge required can be found by cross referencing the rows vertically and horizontally.
(#14 AWG).

Total One Way Length of Wire Run (ft.)	LOAD CURRENT @ 24V							
	1/4A	**1/2A**	**3/4A**	**1A**	**1-1/4A**	**1-1/2A**	**2A**	**3A**
100	24	20	18	18	16	16	14	12
150	22	18	16	16	14	14	12	10
200	20	18	16	14	14	12	12	10
250	18	16	14	14	12	12	12	10
300	18	16	14	12	12	12	10	-
400	18	14	12	12	10	10	-	-
500	16	14	12	10	10	-	-	-
750	14	12	10	10	-	-	-	-
1000	14	10	10	-	-	-	-	-
1500	12	10	-	-	-	-	-	-

Total One Way Length of Wire Run (ft.)	LOAD CURRENT @ 12V							
	1/4A	**1/2A**	**3/4A**	**1A**	**1-1/4A**	**1-1/2A**	**2A**	**3A**
100	20	18	16	14	14	12	12	10
150	18	16	14	12	12	12	10	-
200	16	14	12	12	10	10	-	-
250	16	14	12	10	10	10	-	-
300	16	12	12	10	10	-	-	-
400	14	12	10	-	-	-	-	-
500	14	10	10	-	-	-	-	-
750	12	10	-	-	-	-	-	-
1000	10	-	-	-	-	-	-	-
1500	10	-	-	-	-	-	-	-

Wire Gauge Chart courtesy of Electronic locking Devices by John L. Schum

Types of Wire:

Hookup wire is available in both solid and stranded wire types. Stranded wire is the accepted standard for system hookup as it is more flexible and less likely to break. It's made of several small-diameter wires twisted together to form one larger-diameter conductor. To prevent the strands from separating, stranded wire is usually tinned (solder applied to ends of wire). This makes connections easier and prevents the wire from fraying.

Wire Gauge:

Wire is given a gauge number to classify it by its size or thickness. American wire gauge (AWG) is the most common measurement for electrical wire size – the lower the wire gauge number, the larger the wire diameter and the greater the current carrying capability.

Wire Insulation:

The wire insulation should be UL or CSA approved for the maximum voltage to which the wire will be subjected. Normally, the wire rating is three to six times greater than the maximum voltage to be applied to the wire.

USA: 2517 SQUADRON COURT, SUITE 104, VIRGINIA BEACH, VA 23453 • CANADA: 210 SHEARSON CRESCENT, CAMBRIDGE, ON N1T 1J6
PHONE • 1.800.265.6630 • 519.621.7651 • FAX: 1.800.482.9795 • 519.621.7939 • E-MAIL: SALES@RUTHERFORDCONTROLS.COM