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Wire Size Recommendations

Voltage drop is a significant issue in marine electric equipment. The American Boat and Yacht Council (ABYC) offers the following charts to determine appropriate wire sizes based on the amp load and run length of wire in a given application. Charts for 3% and 10% voltage drop are below. ABYC recommends using wire based on the 3% chart for "sensitive" equipment (eg. electronics). For most Imtra products (windlasses, lighting, windshield wipers), wire selected using the 10% drop chart is sufficient. For all products, consult the owner's manual for specific wiring instructions and/or size recommendations.

Conductor Sizes (Gauge) for 3% Voltage Drop – 12 VOLTS																			
Total Current on Circuit	Length of conductor from source of current to the product and back to the source – in feet.																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5 Amps	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
10 Amps	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
15 Amps	12	10	10	8	8	6	6	6	4	4	2	2	2	2	2	1	1	1	1
20 Amps	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0
25 Amps	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0
30 Amps	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0
40 Amps	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
50 Amps	6	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				
60 Amps	6	4	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0	4/0						
70 Amps	6	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0								
80 Amps	6	4	2	2	1	0	3/0	3/0	4/0	4/0									
90 Amps	4	2	2	1	0	2/0	3/0	4/0	4/0										
100 Amps	4	2	2	1	0	2/0	3/0	4/0											

Conductor Sizes (Gauge) for 10% Voltage Drop – 12 VOLTS																			
Total Current on Circuit	Length of conductor from source of current to the product and back to the source – in feet.																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5 Amps	18	18	18	18	18	16	16	14	14	14	12	12	12	12	12	10	10	10	10
10 Amps	18	18	16	16	14	14	12	12	10	10	10	10	8	8	8	8	8	8	6
15 Amps	18	16	14	14	12	12	10	10	8	8	8	8	8	6	6	6	6	6	6
20 Amps	16	14	14	12	12	10	10	8	8	8	6	6	6	6	6	6	4	4	4
25 Amps	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
30 Amps	14	12	12	10	10	8	8	6	6	6	6	4	4	4	4	2	2	2	2
40 Amps	14	12	10	10	8	8	6	6	6	4	4	4	2	2	2	2	2	2	2
50 Amps	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1
60 Amps	12	10	8	8	6	6	4	4	2	2	2	2	2	1	1	1	0	0	0
70 Amps	10	8	8	6	6	6	4	2	2	2	2	1	1	1	0	0	0	2/0	2/0
80 Amps	10	8	8	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	2/0
90 Amps	10	8	6	6	6	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0	3/0
100 Amps	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0	3/0	3/0

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Conductor Sizes (Gauge) for 3% Voltage Drop – 24 VOLTS																			
Total Current on Circuit	Length of conductor from source of current to the product and back to the source – in feet.																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5 Amps	18	18	18	16	16	14	12	12	12	10	10	10	10	10	8	8	8	8	8
10 Amps	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
15 Amps	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
20 Amps	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
25 Amps	12	12	10	10	8	6	6	6	4	4	4	4	2	2	2	2	2	2	1
30 Amps	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1
40 Amps	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0
50 Amps	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0
60 Amps	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0
70 Amps	8	6	6	4	4	2	2	1	1	0	0	2/0	2/0	3/0	3/0	3/0	3/0	3/0	4/0
80 Amps	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
90 Amps	8	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0	4/0	4/0	4/0
100 Amps	8	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				

Conductor Sizes (Gauge) for 10% Voltage Drop – 24 VOLTS																			
Total Current on Circuit	Length of conductor from source of current to the product and back to the source – in feet.																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5 Amps	18	18	18	18	18	18	18	18	16	16	16	16	14	14	14	14	14	14	12
10 Amps	18	18	18	18	18	16	16	14	14	14	12	12	12	12	12	10	10	10	10
15 Amps	18	18	18	16	16	14	14	12	12	12	10	10	10	10	10	8	8	8	8
20 Amps	18	18	16	16	14	14	12	12	10	10	10	10	8	8	8	8	8	8	6
25 Amps	18	16	16	14	14	12	12	10	10	10	8	8	8	8	8	6	6	6	6
30 Amps	18	16	14	14	12	12	10	10	8	8	8	8	8	6	6	6	6	6	6
40 Amps	16	14	14	12	12	10	10	8	8	8	6	6	6	6	6	6	4	4	4
50 Amps	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
60 Amps	14	12	12	10	10	8	8	6	6	6	6	4	4	4	4	2	2	2	2
70 Amps	14	12	10	10	8	8	6	6	6	6	4	4	4	2	2	2	2	2	2
80 Amps	14	12	10	10	8	8	6	6	6	4	4	4	2	2	2	2	2	2	2
90 Amps	12	10	10	8	8	6	6	6	4	4	4	2	2	2	2	2	2	1	1
100 Amps	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1

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