5. 24V AC CAMERA POWER SUPPLIES

Use the table on page 6 to help you choose the appropriate power supply for your needs. The main selection criteria are

- The number of cameras to be powered
- The current draw.

In figuring the current draw remember that the total power available is not the sum of the maximum available from each of the outputs. For example, the PS-2480 has 8 camera outputs and you may draw up to 1.85 Amps from any output. However, your total current (obtained by adding the draw of all the cameras) should not exceed 4 Amps. Loading each output at 1.85 Amps for a total of 14.8 Amps would clearly overload the supply!

Example 1: You have 2 domes drawing 1 Amp each and 6 cameras, drawing 150mA each. Your total current draw is 2.9 Amps, well within the total available current of 4 Amps. **This is OK**.

Example 2: You have 5 domes, drawing 1 Amp each and 3 cameras, drawing 150 mA each. Your total current draw is 5.45 Amps, exceeding the total available current of 4 Amps. **This in not OK. Your installation will not work.**

As a safety measure, we recommend running a power supply at or below about 75% of its total power for continuous operation. This allows for fluctuations and provides a more reliable installation.

With longer cable runs, it is important to calculate the likely voltage drop which will occur. Stealth provides a handy software program called Stealth-Calc to help you do this. Some Call or email us for your copy. Some examples of voltage drop are shown in the following tables.

- Notice the effect of the cable gauge. Using 18 AWG (American Wire Gauge) cable reduces the voltage drop dramatically over the thinner 22 AWG.
- Another way to overcome the effect of voltage drop is to use a 28V AC power supply. Starting out with 4 more extra volts translates directly to having 4 extra volts available at the camera. See the example below.

CURRENT DRAW	CABLE LENGTH	VOLTS @ CAMERA (22AWG WIRE)	VOLTS @ CAMERA (18AWG WIRE)
100mA	100 feet	23.68	23.87
100mA	200 feet	23.36	23.75
100mA	300 feet	23.04	23.62
100mA	500 feet	22.40	23.37
100mA	1000 feet	20.81	22.73
100mA	1500 feet	19.21	22.10
100mA	2000 feet	17.62	21.47
100mA	3000 feet	14.43	20.20
100mA	5000 feet	8.05	17.67
150mA	100 feet	23.52	23.81
150mA	200 feet	23.04	23.62
150mA	300 feet	22.56	23.43
150mA	500 feet	21.61	23.05
150mA	1000 feet	19.21	22.10
150mA	1500 feet	16.82	21.15
150mA	2000 feet	14.43	20.20
150mA	3000 feet	9.64	18.3
150mA	5000 feet	0.07	14.51

VOLTAGE DROP BY CURRENT DRAW AND CABLE LENGTH 24V AC POWER SUPPLIES

The table clearly shows how the voltage drop is affected by the length and gauge of the cable and the current draw of the device being powered. If the resultant voltage is below the minimum acceptable for the device, you may have to find a closer location for the power supply.
In some cases, it will be possible to compensate for this voltage drop by selecting a 28V AC power supply. Simply add 4 Volts to the figure shown in the table.
Example: A device drawing 1 Amp, positioned 500 feet from the power supply will have 17.67 Volts available to it. This is unlikely to meet the manufacturer's specifications for the device. A 28V power supply would deliver 4 more Volts, i.e. 21.67V, which may be adequate.

Table is continued on next page.

CURRENT DRAW	CABLE LENGTH	VOLTS @ CAMERA (22AWG WIRE)	VOLTS @ CAMERA (18AWG WIRE)
200mA	100 feet	23.36	23.75
200mA	200 feet	22.72	23.49
200mA	300 feet	22.09	23.24
200mA	500 feet	20.81	22.73
200mA	1000 feet	17.62	21.47
200mA	1500 feet	14.43	20.20
200mA	2000 feet	11.24	18.94
200mA	3000 feet	4.86	16.41
300mA	100 feet	23.04	23.62
300mA	200 feet	22.09	23.24
300mA	300 feet	21.13	22.86
300mA	500 feet	19.21	22.10
300mA	1000 feet	14.43	20.20
300mA	1500 feet	9.64	18.30
300mA	2000 feet	4.86	16.41
500mA	100 feet	22.40	23.37
500mA	200 feet	20.81	22.73
500mA	300 feet	19.21	22.10
500mA	500 feet	16.02	20.84
500mA	1000 feet	8.05	17.67
750mA	100 feet	21.61	23.05
750mA	200 feet	19.21	22.10
750mA	300 feet	16.82	21.15
750mA	500 feet	12.04	19.25
750mA	800 feet	4.86	16.41
1 Amp	100 feet	20.81	22.73
1 Amp	200 feet	17.62	21.47
1 Amp	300 feet	14.43	20.20
1 Amp	500 feet	8.05	17.67
1 Amp	600 feet	4.86	16.41
1.5 Amps	100 feet	19.21	22.10
1.5 Amps	200 feet	14.43	20.20
1.5 Amps	300 feet	9.64	18.30
1.5 Amps	400 feet	4.86	16.41
2 Amps	100 feet	17.62	21.47
2 Amps	200 feet	11.24	18.94
2 Amps	300 feet	4.86	16.41

VOLTAGE DROP BY CURRENT DRAW AND CABLE LENGTH 24V AC POWER SUPPLIES (CONTINUED)

The table clearly shows how the voltage drop is affected by the length and gauge of the cable and the current draw of the device being powered. If the resultant voltage is below the minimum acceptable for the device, you may have to find a closer location for the power supply.

In some cases, it will be possible to compensate for this voltage drop by selecting a 28V AC power supply. Simply add 4 Volts to the figure shown in the table.

Example: A device drawing 1 Amp, positioned 500 feet from the power supply will have 17.67 Volts available to it. This is unlikely to meet the manufacturer's specifications for the device. A 28V power supply would deliver 4 more Volts, i.e. 21.67V, which may be adequate.

6. 12V DC CAMERA POWER SUPPLIES

The principles for selection of a 12V DC power supply are similar to those for 24V AC units. Use the table on page 9 to help you choose the appropriate power supply for your needs. The main selection criteria are

- The number of cameras to be powered
- The current draw.

In figuring the current draw remember that the total power available is not the sum of the maximum available from each of the outputs. For example, the PS-1280DC has 8 outputs and you may draw up to 1.1 Amps from any output. However, your total current (obtained by adding the draw of all the cameras) should not exceed the total available current of 2.5 Amps. Loading each output at 1.1 Amps for a total of 8.8 Amps would clearly overload the supply!

- As a safety measure, we recommend running a power supply at or below about 75% of its total power for continuous operation. This allows for fluctuations and provides a more reliable installation.
- With DC power supplies, it is very important to observe polarity. Make sure + is connected to + and – to –.
- Some examples of voltage drop are shown in the following tables. Notice the effect of the cable gauge. Using 18 AWG (American Wire Gauge) cable reduces the voltage drop dramatically over the thinner 22 AWG.

CURRENT DRAW	CABLE LENGTH	VOLTS @ CAMERA (22AWG WIRE)	VOLTS @ CAMERA (18AWG WIRE)
50mA	100 feet	13.64	13.74
50mA	200 feet	13.48	13.67
50mA	300 feet	13.32	13.61
50mA	500 feet	13.00	13.48
50mA	1000 feet	12.20	13.17
50mA	1500 feet	11.41	12.85
50mA	2000 feet	10.61	12.53
50mA	3000 feet	9.01	11.90
50mA	5000 feet	5.82	10.64
100mA	100 feet	13.48	13.67
100mA	200 feet	13.16	13.55
100mA	300 feet	12.84	13.42
100mA	500 feet	12.20	13.17
100mA	1000 feet	10.61	12.53
100mA	1500 feet	9.01	11.90
100mA	2000 feet	7.42	11.27
100mA	3000 feet	4.23	10.00
100mA	5000 feet	0	7.47
150mA	100 feet	13.32	13.61
150mA	200 feet	12.84	13.42
150mA	300 feet	12.36	13.23
150mA	500 feet	11.41	12.85

VOLTAGE DROP BY CURRENT DRAW AND CABLE LENGTH 12V DC POWER SUPPLIES

The table clearly shows how the voltage drop is affected by the length and gauge of the cable and the current draw of the device being powered. If the resultant voltage is below the minimum acceptable for the device, you may have to find a closer location for the power supply or adjust the voltage output upwards.

Voltage Output Adjustment

12V DC power supplies actually put out 13.8V, to allow for the effect of load and distance. The figures in the table reflect this factory default voltage output. If your cable distance is such that an excessive voltage drop will occur, you may adjust the output voltage upwards to as much as 15V by turning an adjustment potentiometer on the board. Calculate the maximum achievable voltage at your cameras by adding 1.2 Volts to the figures shown in the table.

Always use common sense in making voltage adjustments. Remember that all cameras connected to the supply will be affected when you turn the voltage up. Do not adjust the voltage to a level that exceeds the specified limits of the camera.

CURRENT DRAW	CABLE LENGTH	VOLTS @ CAMERA (22AWG WIRE)	VOLTS @ CAMERA (18AWG WIRE)
150mA	1000 feet	9.01	11.90
150mA	1500 feet	6.62	10.95
150mA	2000 feet	4.23	10.00
150mA	3000 feet	0	8.10
200mA	100 feet	13.16	13.55
200mA	200 feet	12.52	13.29
200mA	300 feet	11.89	13.04
200mA	500 feet	10.61	12.53
200mA	1000 feet	7.42	11.27
200mA	2000 feet	1.04	8.74
300mA	100 feet	12.84	13.42
300mA	200 feet	11.89	13.04
300mA	300 feet	10.93	12.66
300mA	500 feet	9.01	11.90
300mA	1000 feet	4.23	10.00
300mA	1200 feet	2.31	9.24
500mA	100 feet	12.20	13.17
500mA	200 feet	10.61	12.53
500mA	300 feet	9.01	11.90
500mA	500 feet	5.82	10.64
500mA	700 feet	2.63	9.37
750mA	100 feet	11.41	12.85
750mA	200 feet	9.01	11.90
750mA	300 feet	6.62	10.95
750mA	400 feet	4.23	10.00
750mA	500feet	1.84	9.05
1 Amp	100 feet	10.61	12.53
1 Amp	200 feet	7.42	11.27
1 Amp	300 feet	4.23	10.00
1 Amp	350 feet	2.63	9.37
1.5 Amps	100 feet	9.01	11.90
1.5 Amps	200 feet	4.23	10.00
1.5 Amps	250 feet	1.84	9.05
2 Amps	100 feet	7.42	11.27
2 Amps	150 feet	4.23	10.00
2 Amps	200 feet	1.04	8.74

VOLTAGE DROP BY CURRENT DRAW AND CABLE LENGTH 12V DC POWER SUPPLIES

The table clearly shows how the voltage drop is affected by the length and gauge of the cable and the current draw of the device being powered. If the resultant voltage is below the minimum acceptable for the device, you may have to find a closer location for the power supply.

Voltage Output Adjustment

12V DC power supplies actually put out 13.8V, to allow for the effect of load and distance. The figures in the table reflect this factory default voltage output. If your cable distance is such that an excessive voltage drop will occur, you may adjust the output voltage upwards to as much as 15V by turning an adjustment potentiometer on the board. Calculate the maximum achievable voltage at your cameras by adding 1.2 Volts to the figures shown in the table.

Always use common sense in making voltage adjustments. Remember that all cameras connected to the supply will be affected when you turn the voltage up. Do not adjust the voltage to a level that exceeds the specified limits of the camera.