

Connecting and powering a Analog Video Security System

By Peter Brissette
GSP America



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Cable Options for Video Connections

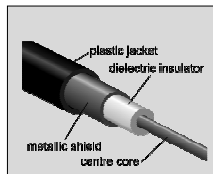
- Coax
- UTP (Unshielded Twisted Pair)
- Fiber Optic



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Coax

- A cable with a central conductor that's surrounded by a shield sharing its same axis is called a coaxial cable.
- Primary type used is RG59/U



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Coax

- *Minimum cable requirements:
75 ohm impedance
All-copper center conductor
All-copper braided shield with 95% braid coverage

Cable Type*	Maximum Distance
RG-59/U	750 ft
RG-6/U	1,000 ft
RG-11/U	1,500 ft



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Connecting Coax

- Connected using BNC connectors
- Tools required:
 - Coax wire stripping tool
 - Crimping tool



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Coax

- Can be ordered as Siamese cable that will include 18 gauge wire for power
- Usually sold in roles of 500 and 1000 ft.
- Need to be aware of electromagnetic interference (EMI)
- Also have to be careful of the bend radius



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Coax – Plenum vs Non-Plenum

- Plenum air space in a building is an enclosed space where air is circulated as a part of the HVAC.
- Standard coax is toxic when it burns.
- Plenum cable is jacketed with a fire retardant plastic jacket of either a low-smoke polyvinyl chloride (PVC) or a fluorinated ethylene polymer (FEP).
- Plenum rated cable is more expensive and requires Plenum BNC connectors.
- Need to carefully review the site to see if you will need it.



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UTP

- UTP - Unshielded Twisted Pair
- Convert a 100-ohm balanced 24 gauge network type cable (Cat 2 to 6) unshielded to a 75-ohm unbalanced video signal.
- Used in conjunction with video baluns (passive or active)
- Noise immunity
- 1000 ft distance with passive system (6000 ft or more with active system)



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Fiber Optic

- Great for very long distances
- Excellent video quality
- More expensive
- Requires special handling and connection devices
- Has to be handled very carefully



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Power Options

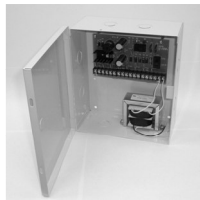
- Most cameras can be powered by 12 Volt DC or 24 Volt AC.
- Can come from local power from a transformer



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Multi-Camera Power Supply

- Can use a Multi-Camera power supply, sometimes called a PDU (power distribution unit)



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Multi-Camera Power Supply

- Able to provide power to multiple cameras
- Typically comes in 4, 8, 16 and 32 channel options
- Can be AC, DC or both.
- Usually have some type of fuse options built in as well
- Ties up only one power outlet
- Cameras cannot be accidentally unplugged
- Provides a much cleaner and professional installation



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Distance Concerns

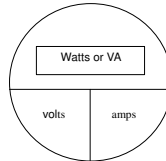
- DC and AC are very different
- DC power can only typically go about 300 feet.
- AC power will typically be able to run the same distances as standard video cable runs.
- We have detailed distance and power charts available if you need them.



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How to determine the correct power supply

- The main selection criteria are
 - The number of cameras to be powered
 - The total current draw.
- Can get power requirements from camera spec sheets
- If you don't know the amps you can divide the watts or VA by the voltage to find out.



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How to determine the correct power supply

- 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 in a 8 camera output 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!



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Example 1

Cameras	Qty	Amps	Total
Dome	2	1	2
Other	6	.150	.9
			2.9

- 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.**



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Example 2

Cameras	Qty	Amps	Total
Dome	5	1	5
Other	3	.150	.45
			5.45

- 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 is not OK. Your installation will not work.**



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Stealth Labs Power Supplies

- Stealth Labs has their STV Series Power supply.
- It is AC/DC selectable.
- STV-04: 4 outputs
- STV-08: 8 outputs
- STV-16: 16 outputs
- Self-Resetting SmartFuse Protection
- Protects all outputs. Reacts like a glass fuse but reset themselves when the surge has passed or the fault is removed.



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Stealth Labs Power Supplies

- Input Voltage is 110 VAC
- Output Voltage: 12 VDC or 24 VAC, selectable
- SmartFuse Rating: 1.85 Amps per output
- Current Output:
 - STV-04 & 08 2.5A @ 12VDC or 4A @ 24VAC
 - STV-16 5A @ 12VDC or 8A @ 24VAC



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For Outdoor PTZ cameras

- Always have a separate power supply as close as possible to the camera.
- That will provide 24 Volt AC power for the camera
- Also provides power for the housing for heaters and blowers
- Recommended power supply would be the Stealth Labs PS2420E



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PTZ Telemetry

- Control wires for the PTZ
- This is the RS-485 signal
- Can use 24 gauge wire
- Distance that can be run is around 4,000 feet
- Connect to Tx+/- on DVR or Controller and on the Rx +/- on the PTZ



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Closing

- If any questions email peter@gspamerica.com
- Or Call 1-800-298-0470
- Connect on LinkedIn www.linkedin.com/in/peterbrissette



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