

Application note: AN-9 Line Extender**Extend your wire range using our standard multi-winding isolated CCTV power supply.****By Jerry Baker JDB@Securitypower.com****Technical Data: Getting Power to a remote device on a Long Wire Run**

Have you ever needed to power a 45 Watt device at the end of 900 feet of 18 gauge wire? Or how about powering a 20 watt camera at the end of 1 pair 26 awg 300 ft away? You can do this with two of our ACLX AC Line Extenders. By running an isolated line voltage of 72v you can do this. With a 48V isolated line voltage you could run 400 ft of 18 gauge wires. This application note will show you how do this utilizing our standard isolated camera power supply P/N: PDA-4EST4IMW. This unit is a 100 watt multi-wound transformer with 4 fused, isolated 24vac windings mounted in a small enclosure. You may view or print a

technical sales sheet at:

<http://www.securitypower.com/MWTS.html>

We have an online calculator that can help you with your extended wire application. You may run online or download at:

<http://www.securitypower.com/WireLossCalculator.html>

With this application you can power an 80W Camera 5 to 10 times further or with much smaller wire then you could otherwise do. You can extend 24vac or 120vac with this setup to run a 24vac device or plug in another DC power supply at the remote end. By raising the transmission line voltage the current is greatly reduced for sending the same power. $Watts = Amps \times Volts$ At the receive end we step the voltage back to normal. Long utility power lines run at thousands of volts for the same reason.

In this application the line voltage can be 24, 48, or 72vac. Use the lowest voltage you can based on the results from the parameters you enter on the wire loss calculator on our website. Keep your power lost percentage below 10%. You must check with your local Electrical code to be sure voltages are in compliance. 48v should be fine for Cat 5 wire and 72v for 22 gauge or larger. All the rules you currently use for low voltage wiring should be the same for this application.

Each of the 5 windings in the transformer are completely separate and isolated from one another. Each transformer is rated for a total 100W or VA of power to pass through it. Any single output winding can handle the full load.

Fuses

If fuse #1, 24vac input or output is used, this fuse should be 6 Amps 3agc fast blow.

For 24vac transmission voltage – Fuse #2 should be 6 A 3 agc fast blow 3 & 4 are not required

For 48vac transmission voltage – Fuse #2 and #3 should be 4 A 3 agc fast blow - #4 not required

For 73vac transmission voltage – Fuse #2 - #4 should be 2 A 3 agc fast blow

The 120vac input and out does not have a fuse and is not required. If you want to add an inline fuse, 2A fast blow would be the appropriate value.

Grounding

Each metal enclosure should be grounded. There should be no grounds on the transmission line.. Each of the windings are complete isolated from one another.

Phasing

Each dot on windings 1-4 and the white neutral wires on the 120vac input and output are of the same phase.

Extending 24vac

Electronic Security Devices

2200 North MacArthur Dr.
Tracy, CA 95376

\\applicationNotes\AN9LineExtender.doc
Technical literature specifications subject to change
Date 7/09 JB

Manufacturers of High Quality Security Devices

Phone: (209) 229-7140 Fax: (209) 2297145
ESD@SecurityPower.com www.SecurityPower.com

When extending 24vac, the maximum continuous power used at the output of the receiving end should not exceed 50 Watts or VA minus line lost power.

If you can use 120vac as your input, you may use up to 80 Watts or VA at the receiving end.

Extending 120vac

When extending 120vac, the maximum continuous power used at the 120vac output of the receiving end should not exceed 80 Watts or VA minus line lost power..

Line Extender

