



Application Note

Powering Multiple Express Power AdrenaLine Units

Express Powering

In certain applications, Express Powering will be required for AdrenaLine deployment. Express powering, which requires a separate power pair is predominately used where both POTS and DSL are provided from a single DSLAM card. In this scenario, line current limitations by the combo POTS/DSL card prohibit the simultaneous powering on the same pair of both the line-powered AdrenaLine and the phone in an off-hook condition. Therefore, Express Power AdrenaLine units are required, and a separate express power pair must be used.

Multiple AdrenaLine units from 1 Express Pair

Depending on your power source, distance, cable conditions, etc., up to 5 Express Power AdrenaLine units can be powered from a single power pair. When sizing a power pair, keep in mind the minimum operational requirements for each individual express powered AdrenaLine unit: the minimum input voltage for each unit is -22VDC, and the minimum current requirement is 10mA for each unit.

The following examples illustrate the relationship between the number of AdrenaLine units, powered by one express pair and the distance from the AdrenaLine units to the power source:

Example 1:

- Power source voltage = 48V
- Power pair is a 24 awg buried pair
- The placement of the AdrenaLine units is at 10,000 ft from the power source. This is equivalent to 519 ohms.
- The formula to determine the number of units that can be powered by this one power pair is:
$$X = (48V - 22V) / (519\text{ohms}) (.01 A)$$
$$X = 5.01$$

So 5 units can be powered.

- If the AdrenaLine units are placed at 11,000 ft (571 ohms), only 4 units can be powered
- If the AdrenaLine units are placed at 13,000 ft (675 ohms), only 3 units can be powered.



Example 2:

- CO Voltage = 48V
- The power pair feeding the AdrenaLine units consists of 8,000 ft of UG 24 awg and 7,000 ft of buried 22 awg. This is equivalent to $8 \times 51.9 \text{ ohms} + 7 \times 32.4 \text{ ohms} = 642 \text{ ohms}$
- The number of units that can be powered by this one express pair is:
$$X = (48V - 22V) / (642 \text{ ohms}) (.01A)$$
$$X = 4.05$$

So 4 units can be powered.

If the express power pair is aerial, add 10% to the UG/buried cable resistance to compensate for the higher resistance at higher temperatures.

If the AdrenaLine units are placed at different locations, use the farthest location to calculate the express pair cable resistance in order to be on the safe side. In this case, the express pair can be daisy-chained to power the different AdrenaLine units.

If you require assistance, please contact Charles Industries Technical Services at (800) 607-8500 (24x7x365) or techserv@charlesindustries.com

Further information on Charles Industries products may be found at:
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