

 **Concept**

Products: Automation Server, AS-B, AS-P Functionalities: Hardware

Product version: 1.8, 1.9, 2.0, 2.1, 3.0, 3.1

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10/12/2017

Product version

3.1

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Language

English

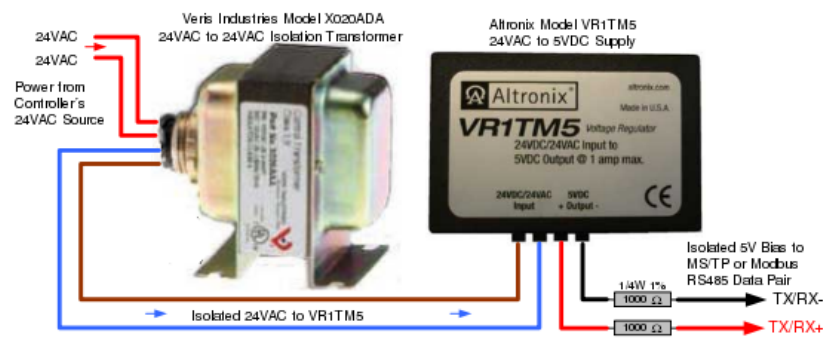
Power Supply Selection for Generic RS-485 Network Device Configuration 7 and 8

The power required from the 5 V DC supply for the bias circuit is extremely small (approximately 5 mA) so just about any small isolated 5 V DC supply will have more than necessary power rating. A low noise power supply with an output isolated from local ground is recommended to minimize the injection of differential noise onto the bus.

Recommended Supply Specifications

Characteristics	Recommendations
Type	5 V DC output isolated from local ground or equipment connections
Output Voltage	5.00 V DC +/- 5% (or better)
Maximum Output Current	0.1 A to 1.5 A (0.5 W to 7.5 W) Any model in this popular range
Minimum Output Current	Operates/regulates down to 0 current (no load required)
Maximum Output Ripple/Noise	150 mV _{pp} (or less)
Safety/EMC Agency Approvals	Applicable approvals for country of application

Frequently, the most convenient power source for the 5 V DC bias supply will be the 24 V AC typically powering the various RS-485 device products. A couple options for the 24 V AC to Isolated 5 V DC power supply would include the models PS-200-3-A-3-L and PS-200-3-A-3-N from Mamac Systems and the model DCP-524 from Kele. Another isolated 5 V supply option with a smaller package/footprint and lower cost would be the combination of the Altronix model VR1TM5 regulator and the small (20 VA) Veris Industries X020ADA 24 V AC to 24 V AC isolation transformer. The figure below shows the Veris/Altronix configuration.



Isolated 5 V DC power supply using Veris X020ADA and Altronix VR1TM5

Other manufacturers/models of 24VAC/24VAC isolation transformers can be substituted to accommodate preferred package, size, local availability, and approvals.

If the use of 115/230 V AC line voltage for the + 5 V DC supply is preferred, the Veris X020ADA transformer can be replaced with a common 115 V/24 V or 230 V/24 V transformer. This can be a separate transformer of the same type used to power the 24 V AC devices. However, the transformer size used for this application can be as small as you have available. In this application, the VR1TM5 presents a load of less than 1 VA. The transformer output used to power the VR1TM5 should not be connected to any other device.

See Also

-  [Generic RS-485 Network Devices](#)
-  [Configuration Selection for Generic RS-485 Network Devices](#)
-  [Generic RS-485 Network Device Configuration 7](#)



Generic RS-485 Network Device Configuration 8

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