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How to troubleshoot communication problems on RS-485 network?

Applies to:

Platform	Module	Converter
PC, NB, HMI, and other master devices	I-7K, M-7K, I-87K, 87Pn and other RS-485 remote I/O modules/units	Other brand converter (Not ICP DAS converter)

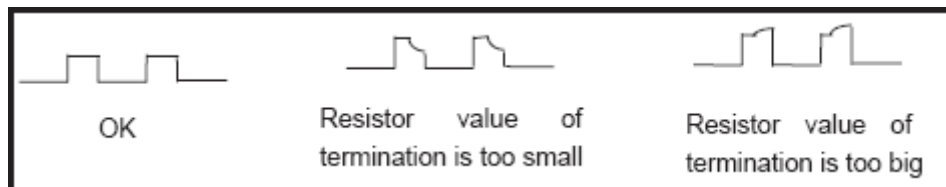
ICPDAS Remote I/O Modules/Units list:

http://www.icpdas.com/root/product/solutions/remote_io/remote_io_products.html

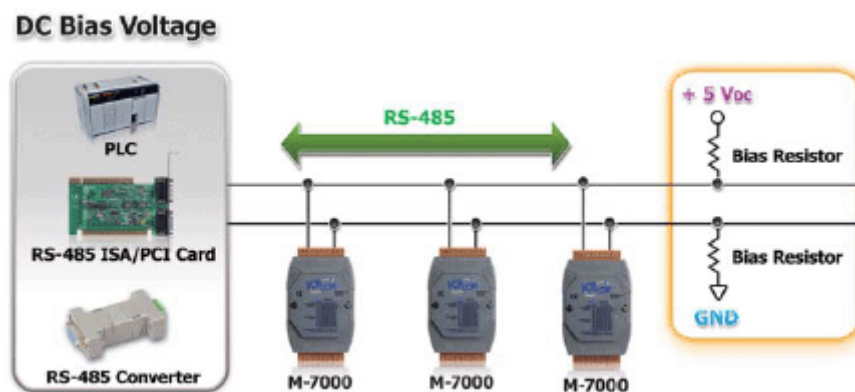
Problem phenomenon:

1. Communication failed with remote I/O modules/units.
2. Using the other brand RS-485 converter (not ICP DAS converter).
3. Users' tools or programs sometimes meet communication problem such as failed to read data or timeout error.

ICP DAS Remote I/O modules/units need pull high and pull low resistors for stable signal on the RS-485 network. If the impedance does not match with requirement, the signal on RS-485 may become unstable as below. It will cause communication problems.



Below are some suggestions to solve the problem:



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1. Use ICP DAS converter: ICP DAS converter comes with pull high and pull low resistors. It can stable the communication signal on RS-485 network. For more detailed information, please refer to http://www.icpdas.com/root/product/solutions/industrial_communication/industrial_communication_products.html#Converter
2. Add pull high and pull low resistors: Users can add pull high and pull low resistors on RS-485 network for stable communication signal
3. Add tM-SG4: tM-SG4 comes with pull high and pull low resistors. It also can stable communication signal on RS-485 network. For more detailed information, please go to http://www.icpdas.com/root/product/solutions/signal_conditioning_modules/sg-700/tm-sg4.html



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Revision History

Revision	Date	Description
1.0.0	2014/04/10	First released