

Automation Service News

The Newsletter of Delta Automation Inc.

Tech Tip!

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Tech Tip!

Special Uses for Dual Cable Systems on Remote I/O

The primary purpose of installing a dual cable remote I/O system is to prevent the loss of process control in the event of a cable failure of some type. A Modicon remote I/O system can accommodate up to a maximum of 32 drops. The maximum signal loss allowed is -35 dB. Each drop interface is connected to the main trunk cable via a special tap, which attenuates the signal -14 dB. The typical insertion loss on the trunk is 0.8 dB per tap, and 6 dB per splitter. Utilizing these losses, it is easily calculated that a maximum number of taps on a straight (*linear*) system is 26. [EG. $0.8 \times 26 = 20.8 + 14 = 34.8$ (without cable losses)] This would present a problem for systems requiring more than 26 drops. One solution, and a very common one, is to utilize a splitter. This allows up to 18 drops per leg for a total up to the max of 32 for the system. [EG. $0.8 \times 18 = 14.4 + 6 + 14 = 34.4$ (without cable losses)] However this solution presents problems on it's own. With a splitter based system, the entire system must be properly *balanced*. That is, the total losses to each end of each leg must be within (+/-) 1.0 dB of one another. This can be very difficult to achieve. On the design table it can be almost impossible, due to unknown cable lengths depending on the physical locations of the drops. The balancing is actually achieved by attempting to have the same number of drops and equal cable lengths on each side of the splitter. In the real world, this is not always practical or possible. Balancing may be done by varying cable lengths and drop positions to bring the losses to within range. This can only be done properly with the necessary test equipment. This type of installation is always problematic. First, in the design and installation phase, then if any problems occur, the manner in which the errors will show up on the system will baffle most maintenance personnel, which will cause down time to be longer than typically required for a repair. It is for these reasons that Delta Automation, Inc Engineers do not recommend splitter based systems. Where large systems are required and cover a large physical area, another solution is available. You may utilize a dual cable head end product (CRP module, S908 etc.) with single cable remote interface units. What this will accomplish is basically, two separate systems of which each will have a budget of -35 dB. This allows two *linear* systems, for ease of troubleshooting, with the maximum number of drops and most importantly, no balancing required. It does require paying a little more attention when utilizing the system statistics section on any programming software. You must remember that all drops are not on "both" cables. Therefore, a drop may be reported as "bad" on cable B, simply because it is only receiving and returning messages on cable A.

If you would like more information on this or any other remote I/O problem, symptom or design issue, please contact Delta Automation, Inc.



Delta Discovers Potential Disaster in Upgrade Proposal

Recently, a large paper products manufacturer contacted Delta Automation, Inc. to issue a quotation to install a product upgrade for an older Modicon system. This particular system was a 584 controller with one local channel of I/O and one remote channel of I/O. What makes this system unique is the use of 500 series I/O. This system has obviously been in service for sometime. As with most systems of this age, many, many changes have been made to both the software and the hardware. Most of these have been undocumented or the notations lost over the years. Delta was chosen to quote the installation due to our vast experience with these types of systems. The system quoted to replace the existing hardware was a Quantum controller with Quantum I/O. This was an excellent choice of hardware. This unit will allow for many options and additional diagnostics not available on the current system.



However, when Delta Engineers examined the list of hardware originally quoted by another companies application/sales person, and compared it to the field/application evaluation performed on-site, a huge problem was discovered. This sales person was not familiar with the 500 series I/O structure and was not aware of their unique wiring abilities. One of the anomalies of the 500 series products is their ability to have two ISOLATED points on “regular” cards. This posed a problem with the original products selected. Most of the 500 series I/O was 110 volt in and out, with a small amount of 24 volt in and out. The 24 volt products presented a separate problem discussed later. This application did utilize the isolation properties of the 500 series. Therefore all of the originally quoted

Quantum’s I/O had to be replaced with equivalent isolated I/O. Without this substitution, the original cards would have been destroyed upon power up. The 24 volt I/O needed to be the true low type, again an unusual occurrence. True low is a concept that many people do not grasp easily. The only way to properly quote and verify a system such as this, is to perform an on-site audit with the needed knowledge of the products that are being replaced.

Delta Automation, Inc was the vendor chosen to install the products and in the upgrade process was able to reduce the I/O count by a substantial amount by researching the system and removing all of the unused I/O points and redundant or obsolete software. This saved unnecessary product purchase and many useless I/O points to wire. Specific care had to be exercised when converting the I/O field wiring from the 500 series to the Quantum. Delta’s experienced Field Service Engineers carefully disassembled the existing wiring, removed any that were being obsoleted and expertly converted the wiring over to the Quantum type. This is one of the reasons that Delta Automation, Inc. should be chosen to quote, review, and install the upgrades for these types of systems.

Complete Service for Gaitronics Industrial Phones

When the recent hurricane, "Isabel" came through Virginia it caused widespread plant power outages. One such local customer lost many of its Gaitronics Communications System units when power was restored, hindering their operation. Delta Automation, Inc. picked up the faulty units and made the necessary repairs within hours. This expertise on Industrial electronic repairs saved the company time and money while returning to normal production.



Vann Barden Joins Delta Automation in Outside Sales



Vann Barden recently joined Delta Automation, Inc. in an outside sales position. Vann will be exclusively assigned to the outside sales department. His duties will include providing personal customer support for any type of sales or service needs, serving as a contact point for emergency assistance, and providing customer specific pick up and delivery.

Vann comes to Delta with a vast amount of industrial sales experience. He has been employed by distributors/providers of electronic tools and components utilized in all industries and repair depots.

Vann will be based in the Richmond, Virginia area.

Please feel free to call Vann for any of your needs.

His office extension is 24 and his cell number is 804-241-5625.

Important Info

When using an MSTR block to retrieve the *Peer Cop Health Status*, you must translate the bit information received to correspond with the node's actual Modbus plus address. The health table is 12 words in length (0-11). Words 0-3 (bits 1-64) contain the health status for nodes 1-64. However, the bit order does not match the order of addresses. They are in REVERSE ORDER. For example: in the first word (0), bit # 1 is MB+ address 16, bit # 2 is MB+ address 15, and so on. In the second word (1) bit # 32 (left most bit) is MB+ address 17, bit # 17 (right most bit) is MB+ address 32. The health bits are set to a "1" when the MB+ nodes are communicating properly. The health bits are cleared to zero when no communications occur within the configured peer cop health time out period.

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For after hours
Emergency Service or Parts
Call our main number 888-723-3582

Extension 55

Leave a message and someone will respond within fifteen minutes to answer your call.
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