

# Connections

## Wire Connections and Harnesses

When building a cabinet, it is impossible not to use wire to connect all of the components. Electrical conduction is simply a means of stripping wire and connecting them to the various parts that make up the soul of the

**“Creativity is just connecting things. When you ask creative people how they did something, they feel a little guilty because they really didn’t do it, they just saw something. It seemed obvious to them after a while.”**

- Steve Jobs

As New England Drives & Controls constantly strives to become a better asset to our customers, our whitepaper series will feature new technologies or helpful insights that may be pertinent to the reader. It is our sincere hope that this information will be beneficial in both relating, and applying content to your industrial needs.

We hope you find this whitepaper series an enjoyable and informative read.

We always welcome your questions and comments.

machine. Each wire must be meticulously cut to the proper dimension. Then a small area at each end is stripped to expose the bare conductor underneath the cable jacket. Depending on how it is attached to the terminal determines the next step. Usually the end of the wire is tinned or a ferrule attached. Lastly that end of wire is attached via a screw or spring terminal to the component it will connect to.

Often times the cabinet needs to meet a particular standard. UL for example. Using UL listed components, wires and ferrules are important to adhere to the standard, but did you know that how the ferrules are crimped on to the wires is also part of the standard. Buying UL listed wire and ferrules, and then crimping them with a standard “automotive” type crimper does not pass muster. Most ferrules require them to be crimped by a crimper designed by the manufacturer in order to maintain the standard. In my travels, this does not seem to be a readily known fact.

The crimping process can be done manually, one at a time using hand tools, or it can be automated to simplify repetitive tasks. Manufacturing in quantity a specific wire harness exemplifies the need for automation, to preserve productivity.

There are many specific tools to make life easier when working with cables. For instance, there is a tool that can remove the jacket from multi conductor cables such as those found in ethernet cables. Using a utility knife risks nicking



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wire insulation which can cause an intermittent break in communications or worse yet, a short circuit. Tools make the repetitious task easier but also maintain the same specifications on each piece that is prepared.

If you are curious about how you can improve productivity in making your own cables, wire-ends,



Or harnesses, just give us a call, and we'll be very happy to help. We can arrange a demonstration for you that can show you the objective long-term benefits that these tools can afford you.

It is also important to let you know that all Phoenix Contact hand tools are covered by the Limited Lifetime Warranty we discussed last month. Any tool that fails, will be replaced for free from Phoenix Contact. All you have to do is register them properly using their web-site. (Wearable/Consumable items that are intended to be replaced during the tools lifetime are excluded. As an example, removeable blades are not covered.)

This speaks very well to the quality of these tools and the components they help to create. You can rest assured and be proud of work you do with these tools. If you would like to learn more, reach out to your friendly New England Drives & Controls, Inc. representative. We will all be glad to help!



-Peter Lavoie (Engineering Manager)



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