Wire Crimping Basics

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INTRODUCTION

When crimping the ring terminals onto the end of the wire, it is important to get a secure, metal to metal connection. If the ring terminal is not secured properly to the bare metal wire, electricity may not flow through the connection and your controller will not work. To make a secure crimp connection:

1. Twist the .75 cm of stripped wires. Insert them through the hole in the red ring terminal until they emerge 1 mm out of the metal ring.
2. Use a crimping tool to crush the metal ring of the ring terminal over the stripped copper wire. The connection should be metal to metal so electricity can flow freely. The connection should also be physically secure so the wire cannot be pulled out ring terminal.

A few other hints for good crimping:

Always use the red dot section of the crimper for the red terminal rings, blue for the blue terminal rings. The crimp tool may have red, yellow and blue dots/lettering. The color of dot corresponds to the color of sheathing on the terminal ring. The Development Class uses red ring terminals over a single 18-gauge wire and uses blue ring terminals over two 18-gauge wires twisted together. Use the red dot/numbering section of the crimper to ensure a good crimp for a red ring terminal and the blue dot/numbering system section of the crimper to ensure a good crimp for the blue ring terminal.

1. Use ratcheting crimpers. A ratcheting crimper will not release until a secure connection has been made. Note that it may need strong hands to squeeze the crimper so it releases.
2. Give the wire/crimp connection a tug when the crimping is complete to ensure a secure connection. If the wire comes out when you tug on it, the connection was not good. Use a new red ring terminal (throw out the old one) and try again. A few extra terminals are included in Development Class kit, as is some extra 18-gauge wire, to use when crimping problems occur.

VERY IMPORTANT

Design note: The most common cause of failure in the Development Class control system is a wire that is not properly crimped. If the metal ring was not securely crimped over the copper wire, electricity may not flow through the connection. Also, the wire may also fall out of the ring terminal if not securely crimped, again stopping the flow of electricity through the circuit.

MAKE SURE ALL YOUR CRIMPS ARE SECURE.

If a switch is not operating, the first troubleshooting technique should be to re-examine all the connections to make sure they are properly crimped.

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No wire should be exposed outside the red terminal ring. Exposed wiring may connect with other metal and create a short circuit. This can lead to vehicle malfunctions and sparks/fire/melting components. If wire is exposed outside the red plastic covering on the terminal, shorten the amount of wire being stripped and re-crimp the terminal.

TOOLS:

- Crimping Plier (1)
- Wire Strippers (1)

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Step 1 — Wire Crimping Basics

● Watch the informative video, taking note of the principles behind wire crimping and the techniques featured that can be applied to your ROV or Submarine build.

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