

## Build Your Own Data Logger

### Module 6: Ruggedizing Devices

## Terminology Starter Guide

<b>Video</b>	<b>6-0</b>
Mechanical / Mechanicals (in the context of hardware devices)	Any physical part of the device, that's not the electronics or circuit board.  For example connectors, cables, enclosures and any moving parts such as a fan.
Potting	The process of encasing a piece of hardware with a solid or gelatinous material to protect it against water, dust and provide resistance to shock and vibration.
Curing agent	Curing agents are any type of additives or ingredients that are used to help harden or cure epoxy resins.
<b>Video</b>	<b>6-1</b>
Cable	A collection of cores (wires), usually of the same wire gauge, bounded or braided together and enclosed in a protective sheath.
Wire Gauge	A measurement of a wire's total cross-sectional diameter. This determines the amount of electric current a wire can safely carry, as well as its electrical resistance and weight.
Current Carrying Capacity / Current Capacity	How much current can pass through a wire before it exceeds its temperature rating. The maximum temperature rating is usually determined by the insulation material.

Signal / Control cable	A cable used to transfer data such as sensor data or control signals. The current required is usually quite low so these can be of smaller gauge.
Power Cable	A cable used to power a device or peripheral. These can potentially have high current carrying capacities such as outdoor extension cables you can find at the hardware store. The gauge of these cables usually need to be sized based on the current requirements of the system they will power.
Polarity	In the context of cables and connectors, the polarity of a connector is either “correct” or “reversed”. We often want a connector to have a polarity mechanism, often some type of protrusion that only allows it to be plugged in one way. If a connector is plugged in backwards, it can damage the electronics and board.
Pitch (in relation to a cable harness)	The spacing between electrical contacts.
<b>Video 3</b>	<b>6-2</b>
Locking Flange	The part of the terminal that acts as a catch to keep the wire inside the cable housing.

## Tutorials / Useful Links

IP Ratings	<a href="https://www.iec.ch/ip-ratings">https://www.iec.ch/ip-ratings</a>
American Wire Gauge (AWG) and current carrying capacity	<a href="https://www.solaris-shop.com/content/American%20Wire%20Gauge%20Conductor%20Size%20Table.pdf">https://www.solaris-shop.com/content/American%20Wire%20Gauge%20Conductor%20Size%20Table.pdf</a>

