

CET246 Electronic Design Automation

Connectors

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Introduction

A 75 cent connector can ruin your day



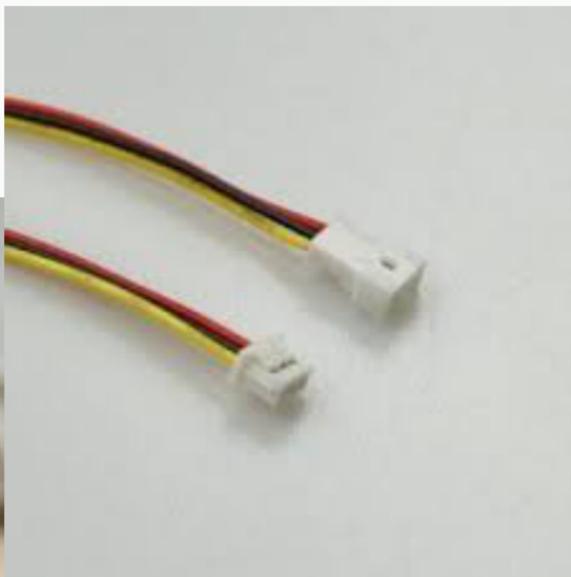
Electrical Requirements

Questions to ask regarding each connector:

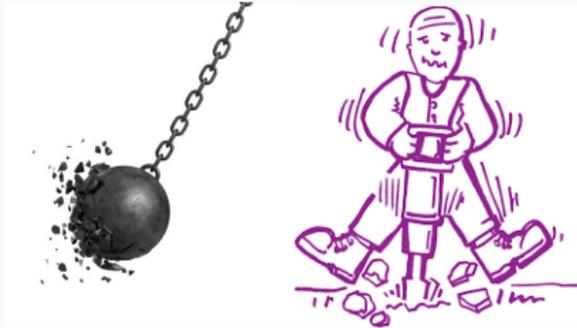
1. How many Signals?
2. High frequency?
3. Low-level analog?
4. High voltage?
5. High current?



Size, Space, and Weight Requirements



Environmental Requirements



International Protection Marking

First Digit:

Solid particle protection

0. No protection
1. (>50 mm) Large Objects
2. (>12.5 mm) Finger width
3. (>2.5 mm) Small tools
4. (>1 mm) Wires, screws
5. Dust protected
6. Dust tight

Second Digit:

Liquid ingress protection

0. No protection
1. Dripping Water, Upright
2. Dripping Water, 15° Tilt
3. Spraying Water, 60° Tilt
4. Splashing Water
5. Water Jets, 6.3 mm nozzle
6. Powerful water jets, 12.5 mm nozzle
7. Immersed, up to 1 meter
8. Immersed, over 1 meter

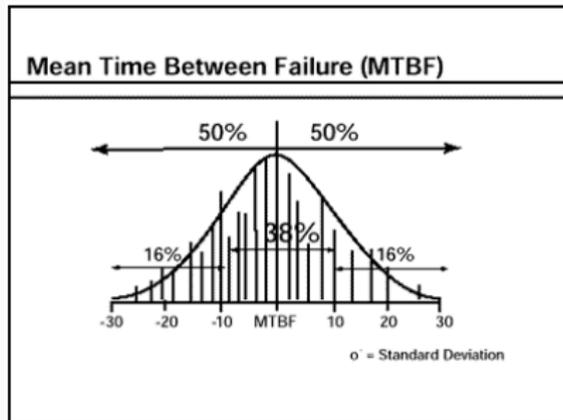
Industry Standards

- OEM - by agreement or Regulatory
- FDA - medical
- SAE - automotive
- MIL defense
- FAA- aerospace
- IEEE- interoperability



Reliability

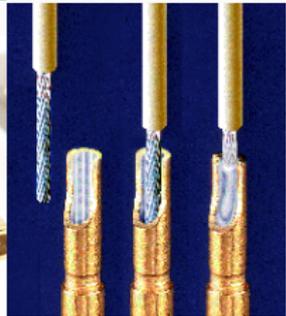
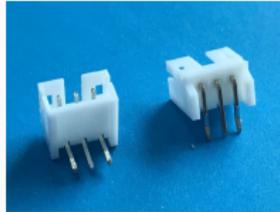
- Mating/Unmating Cycles
- Mean Time Before/To Failure (MTBF/MTTF)



Termination

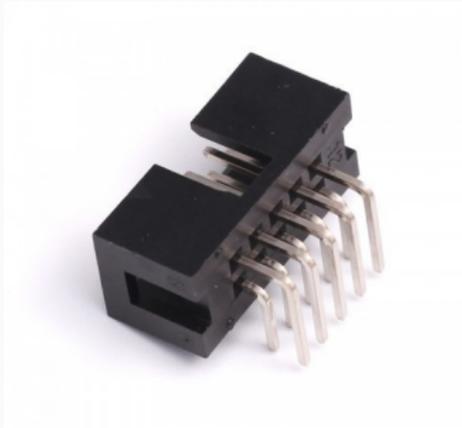
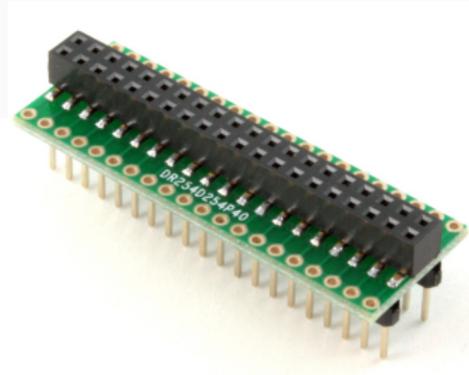
What does it connect to?

- PCB
- Wire
- Crimped
- Soldered
- Press fit



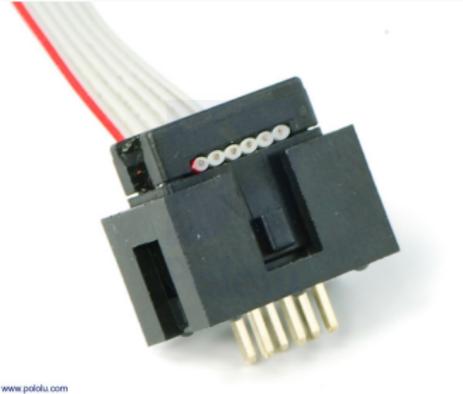
Some Useful Connectors

Board Headers shrouded/unshrouded



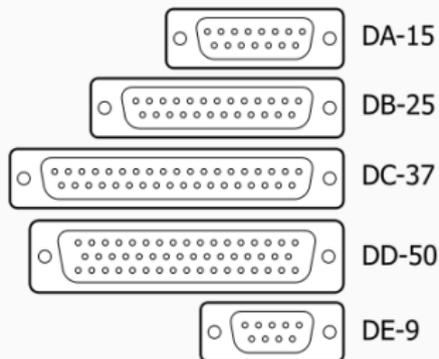
Some Useful Connectors

Press fit



Some Useful Connectors

D Sub-miniature

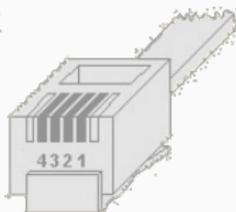


Some Useful Connectors

RJ-XX



**RJ10
(4P4C)**



**RJ11
(4P6C)**



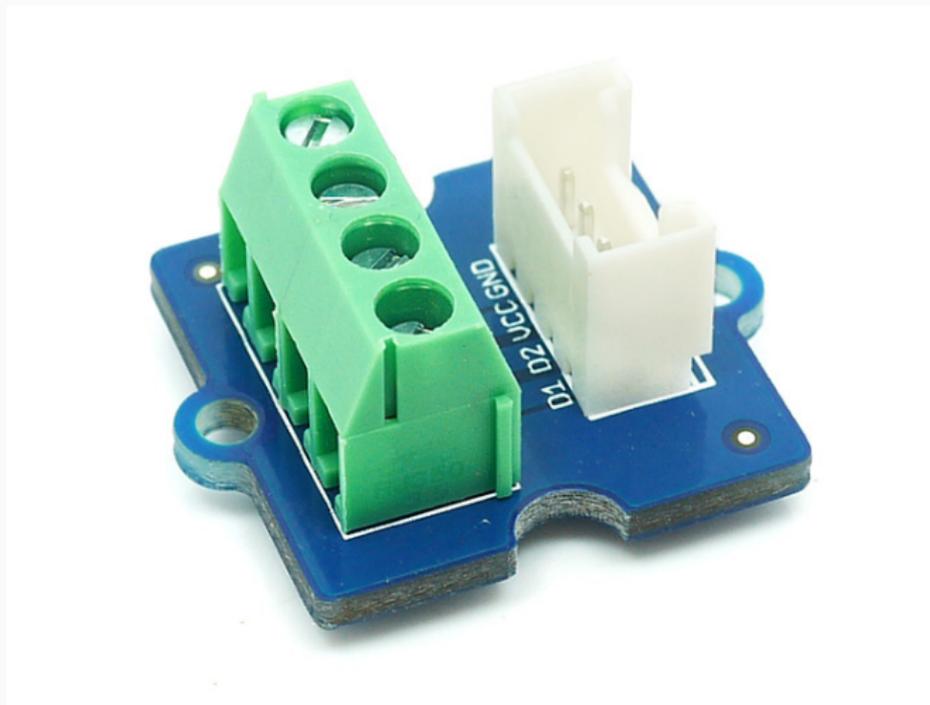
**RJ12
(6P6C)**



**RJ45
(8P8C)**

Some Useful Connectors

Screw terminals



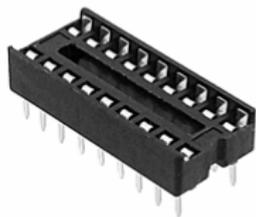
Some Useful Connectors

Barrel/Audio Jack



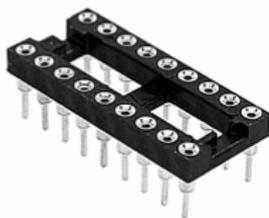
Some Useful Connectors

IC Sockets



Dual Leaf Contacts

Turned Pin Contact



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Some Useful Connectors

British Naval Connector - BNC

