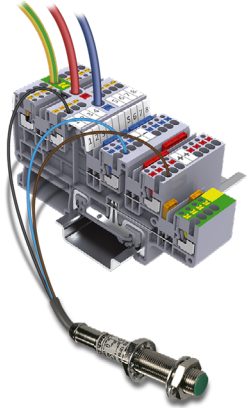


Top Tips Seven Considerations When Selecting DIN-Rail Terminal Blocks



DIN-rail terminal blocks are used in nearly every industry that requires hardwired interconnections of some type. Terminal blocks are used to interconnect a variety of components from human/machine interfaces, control circuits, motion systems, and more. These tips will help design engineers understand some of the characteristics that will make selection easier.

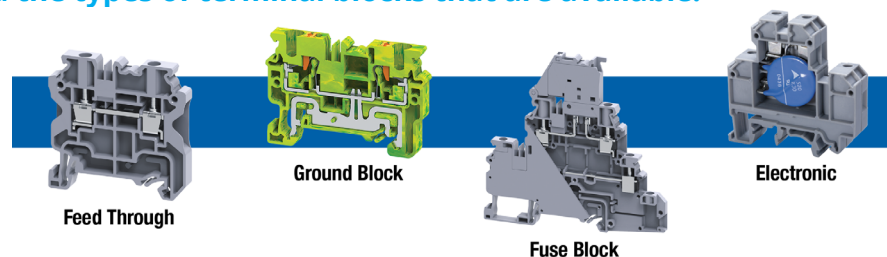
1

Know the number of circuit inputs/outputs your application will require.

Consider all aspects of your project for each interface you'll be making, whether control circuitry, human/machine interfaces, power supplies, sensors, and/or edge devices required for your automation interconnections. Starting out with a clear number of circuits will give you a baseline for further selection criteria you'll be making.

2

Understand the types of terminal blocks that are available.



There are seven main types of terminal blocks:

- Feed-through terminal blocks are incorporated when connecting two wires together for wire-to-wire connections. These blocks have one input and one output per contact and can come in single or multi-level modules.
- Earth/grounding terminal blocks provide electrical grounding to keep people and machinery safe, particularly in control panel wiring.
- Fuse terminal blocks, as the name implies, provide overvoltage protection to your system so that you do not damage high-cost devices.

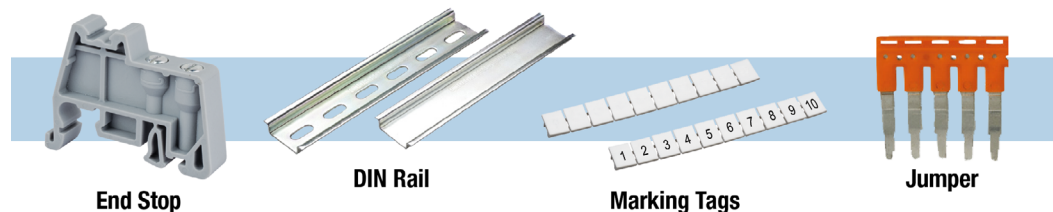
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- Test terminal blocks provide an easy and safe method to perform testing of the equipment that has been interconnected into a complete system without disrupting the load circuit of the complete system.
- Distribution terminal blocks are used in multi-phase systems where various I/O configurations may be present. They are used primarily to simplify the interconnections in a distributed system.
- Thermocouple terminal blocks are specifically designed for temperature measuring circuits where very small voltages are used.
- Electronic terminal blocks provide isolation between the printed circuit board and other components in the system. They are used as indicators or for test circuits.

3

Know what accessories you might need for your application.



Depending on the type of application you are working on and the industry it will go into, you may need a variety of accessories. Some items to consider include end stops to prevent the terminal blocks from shifting on the rail, endplates to cover open terminals for safety reasons, and separator plates to separate circuits visually. Jumpers and shorting links are available to interconnect two or more terminals, while protective covers are used for uninsulated parts. Other accessories include test plugs for handsfree troubleshooting and testing plus marking tags for identifying the terminals.

4

Calculate the current and voltage of the wires you'll require for each terminal block.

There are three primary concerns you'll want to think about when it comes to your system. You'll want to know the voltage and current ratings for each component, the wire sizes you'll require to handle those ratings, and the torques you will need to maintain connection when under potentially hazardous conditions.

5

Know the operating temperature of the equipment you are designing.

When considering your application, identify where it will be operating and under what temperatures. If not calculated properly, over-temperature values can stress your equipment and cause early failures.

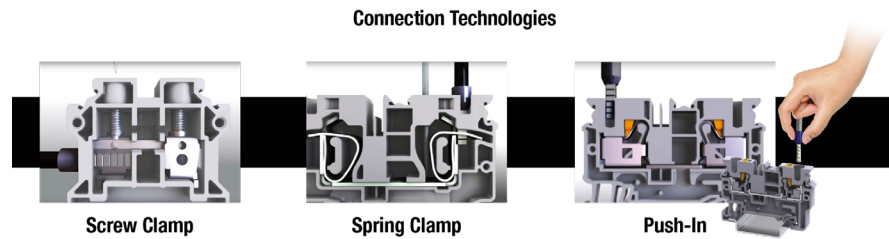
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Plan your design with a clear understanding of the types of wires you will be using.

Different types of equipment need different types of wire for their interfacing. You don't want to mix solid and stranded wires without the right understanding of your project needs. The three wire types you'll be using are solid wires, stranded wires, and wires using ferrules. Multiple-sized wires and ferrules should be considered dependent on the application.

7

Be clear on the three types of connection technologies that can be incorporated.



Common DIN-rail terminal blocks use screw clamp or spring/cage clamp technology for quick and easy installation and maintenance. In addition, push-in DIN-rail terminal blocks are finding a solid hold in the industry as well.

- Screw type terminals are the most dependent on human interaction because of the need to physically screw the terminals. They have been in circulation the longest and offer simple operation. Most screw type terminal blocks offer a locking mechanism to guarantee a safe connection.
- Spring/cage type terminals are typically used inside machine control enclosures where human involvement is expected to happen less often than with screw type terminal blocks. A screwdriver or other tool is needed to open a preloaded spring. Once removed, the stainless steel spring pushes the wire conductor against a copper/tin-plated current bar for electrical connection. Because this type of terminal has a natural resistance to shock and vibration, they are used in vehicles, elevator cabinets, and other moving equipment. Due to their operation, spring/cage type terminal blocks are especially useful when stranded wire is used.
- Push-in type terminal blocks provide a toolless capability that is attractive in many industrial applications where large numbers of terminal blocks are installed. Users are able to simply push solid wires or stranded wires with ferrules into the terminal block for a reliable connection. These terminal blocks are ideal for automation and robotic wiring applications.

8

Partner with a stable industry supplier that has experience with terminal block selection.

Working with the right supplier as a partner is always a benefit. An experienced supplier can often help your design engineers in their selection process, particularly with complex equipment that may be sold around the world.