

FACTS ABOUT FUSES

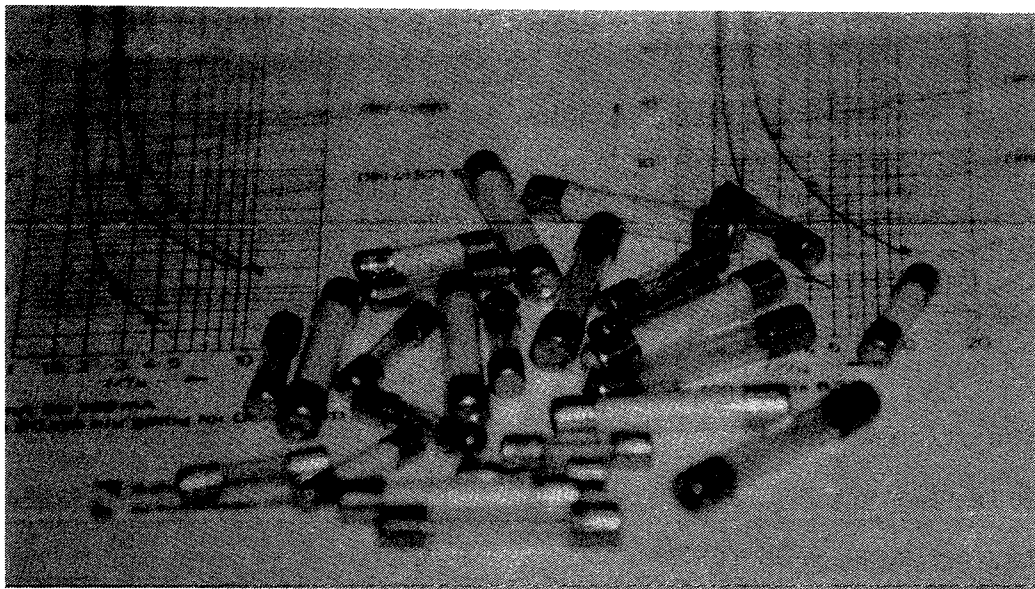
WHAT IS A FUSE?

A fuse is a device used to safeguard the components within an electrical circuit from damage due to overload or short circuit by interrupting the supply of electricity to the circuit.

For almost as long as electricity has been utilised fuses have been in existence, the earliest examples being no more than a bare wire between two contacts ("open-link"). This wire had a current carrying capacity below that of the components it was to protect and therefore became the first part of the circuit to succumb to any overload. Even today this basic principle of operation is considered to be the most dependable and effective means of circuit protection. Since those original bare wires of copper other suitable metals and alloys have been discovered and enclosed fuses have been developed. These enclosures are usually ceramic or glass and not only protect the fuse element from environmental conditions but also permit, when required, the addition of a filler material which helps stifle the arc that occurs during fusing. Clear glass enclosures of course have the added advantage of allowing instant inspection of the fuse element.

While fuses are available with a wide variety of response times the two most common consumer types are:-

1. Slow blowing (also known as "time-delay" and "anti-surge"). These fuses have a built in delay which slows the opening time. They may be used for overload or short circuit protection and are most suitable for applications where surge currents are present.
2. Instant. These fuses have no intentional delay built in and are best suited for short circuit protection only. However, despite their name these fuses are usually not sufficiently "instant" to protect semiconductors. For this application a "very fast acting" fuse is recommended.



HOW TO RATE A FUSE?

The current rating of a fuse is established by the fuse manufacturer after conducting tests as laid down in UL Standards, or by other appropriate means. It is a nominal value only, expressed in amps RMS, and is always shown on the fuse. This current rating should always be greater than the normal operating current of the circuit it is to protect. For slow blowing fuses this is 125%, while for instant fuses a rating of 150%-300% is appropriate. These higher ratings allow the circuit to continue working through minor tolerable surges and overloads without the fuse opening unnecessarily.

The voltage rating of a fuse is a RMS value expressed as volts maximum. A specific voltage rating does not imply that a fuse is able to withstand that particular voltage while carrying current. Instead, the rating is the maximum voltage which will not arc across the open fuse element after it has melted. For example, once blown a 250V rated fuse will remain open in a circuit operating at 250V or less. Therefore, a fuse should always have a voltage rating which is equal to or greater than the working voltage of the circuit in which it is operating.

As part of our Electromechanical Preferred Range we have available from stock the standard values listed below, all rated to 250V. These are all European sourced with DEMKO and SEMKO approvals, manufactured accordingly to IEC Publication 127.

20 x 5 Instant

100 mA	4823 253	27101
500 mA		27501
1 A		27102
2 A		27202
5 A		27502
10 A		27103

20 x 5 Slow

100 mA	4823 253	37101
500 mA		37501
1 A		37102
2 A		37202
5 A		37502
10 A		37103

32 x 6 Instant

1 A	4823 253	47102
2 A		47202
5 A		47502
10 A		47103

32 x 6 Slow

1 A	4823 253	57102
2 A		57202
5 A		57502
10 A		57103

We also have UL recognised panel mounting barrel fuse holders, and our fuse clips are considered by some to be the best available, being silver plated over a base of copper-nickel alloy.