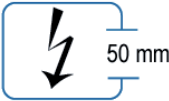

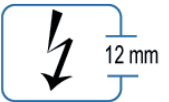

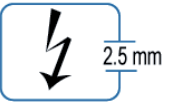

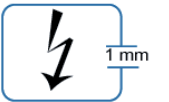

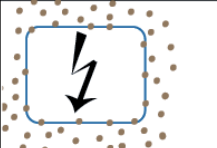
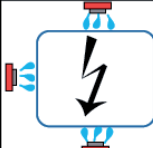
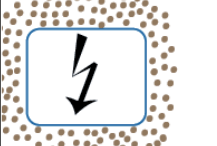
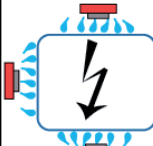



White Paper 2013

What Is An IP Rating, And What Does It Mean?

IP Ratings are a system designed to classify the degrees of protection or sealing that your electrical component has from foreign objects, such as fingers, tools, dust and moisture. This system is recognized in most European Countries. This classification system uses the letters IP, abbreviated for "Ingress Protection", followed by two (2) digits. The first digit represents the protection your component has against solid objects, including protection from hands, tools wires, dust, etc. The larger the number, the greater the components protection from solid objects. The second number represents the components protection from liquids. The lower numbers reflect moisture from humidity, increasing to sprays of water, jets of water, to total immersion. For example, an encoder that is protected to IP65, is dust tight (dust will not enter) and is protected against low pressure jets of water in all directions, with limited ingress. The larger the IP number, the greater the protection.

1st Digit	Protection Against Solids	2nd Digit	Protection Against Liquids
0	No Protection	0	No Protection
1	 Protected against solid objects greater than 50 mm	1	 Protected against vertically falling drops of water
2	 Protected against solid objects greater than 12 mm	2	 Protected against direct sprays of water up to 15° from the vertical
3	 Protected against solid objects greater than 2.5 mm	3	 Protected against direct sprays of water up to 60° from the vertical
4	 Protected against solid objects greater than 1 mm	4	 Protected against water sprays from all directions- limited ingress permitted
5	 Dust protected	5	 Protected against low pressure jets of water in all directions- limited ingress permitted
6	 Dust Tight	6	 Protected against strong pressure jets of water in all directions- limited ingress permitted
		7	 Protected against water immersion between 15 cm and 1 m for a duration of 30 minutes