

**CONFORMAL COATED INDUSTRIAL ETHERNET SWITCH
PROTECTS MISSION CRITICAL APPLICATIONS**

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In mission critical and harsh environments like where most Industrial hardened Ethernet switches are deployed, conformal coating acts as protection against moisture, dust, chemicals, and temperature extremes that if non-protected could result in a complete failure of the electronic system. These applications include mining, metal industries, oil & gas, military applications, chemical processing and food and beverage industries. For additional protection to address the demands of the environmental conditions, Ethernet Direct offers state-of-the art conformal coating on Industrial Ethernet switches that meets MIL-I-46058C standard Ethernet networks will expand in time.

What is Conformal Coating and why is it important in Industrial Ethernet switches?

Conformal coatings encapsulate circuit boards and their electronic components in order to prevent the ingress of moisture, fungus, dust and other environmental contaminants. After the coating is made on the switches, it provides environmental and mechanical protection to significantly extend the life of the components and circuitry to meet the challenges in severe industrial environments.

Based on the increasing demands in various industries, customers' are deploying conformal coatings with expectations to increase the performance of the switch, ease of application, sustainability, quality, functionality, and environmental properties. All of the above expectations require special attention and procedure carried out by Ethernet Direct when manufacturing even single Industrial Ethernet switch in order to ensure that all conformal coated designed switches meet the expected standards. Ethernet Direct continuously to improve the environmental performance and offers conformal coatings Industrial Ethernet switches to enhance more specific demands in industrial applications.

A product may suffer from degraded life and accuracy if the PCB surface comes in contact with ionic substances, making it contaminated. The ionic substances can be in the form of fingerprint or humidity. Having applied conformal coating effectively reduces the effects of mechanical stress, vibrations or temperature changes when an Industrial Ethernet switch could be installed.



The following series of products comes with conformal coating options:

Whale Series Industrial IP-67 Switch Solutions
Whale Series Industrial M12 Switch Solutions
Iguana Industrial Conformal Coated Switch Solutions
Moose Industrial Modbus over TCP Switch Solutions
Panda Industrial PROFIBUS & PROFINET Solutions
Canary Industrial CAN Bus Solutions
Doberman Industrial Remote Monitoring Solutions
Zebra ZigBee Network Converter Solutions

Types of Conformal Coating applied on Industrial Ethernet switches

Ethernet Direct has proven applications in various industries and is focused on providing the highest quality product standards especially catering important industries providing reliability, value, environment impact and safety to their applications. The Ethernet Direct conformal coated switches applied Dow Corning 1-2577 silicone conformal coating compliant with MIL-I-46058C standard. The coating is designed to provide long-term coating against moisture and atmospheric contaminants.

Silicone Protected Surface Coating

Corrosion can occur when a continuous layer of water condenses on the PCB board or electronic circuitry of an Industrial Ethernet switch. If the water particles are not dissolved immediately, it will react and will result in corrosion of components on the circuit. The most effective way to prevent this problem is to protect the circuit with silicone coating to extend the life of the electronics in harsh use environments. Why is this so? It is because liquid particles are easily excluded at the surface of silicone coatings. Besides humidity, conformal coatings provide protection from vibration and a wide variety of contaminants such as vapors, some solvents, and salt spray.

Silicone coatings possess the following characteristics:

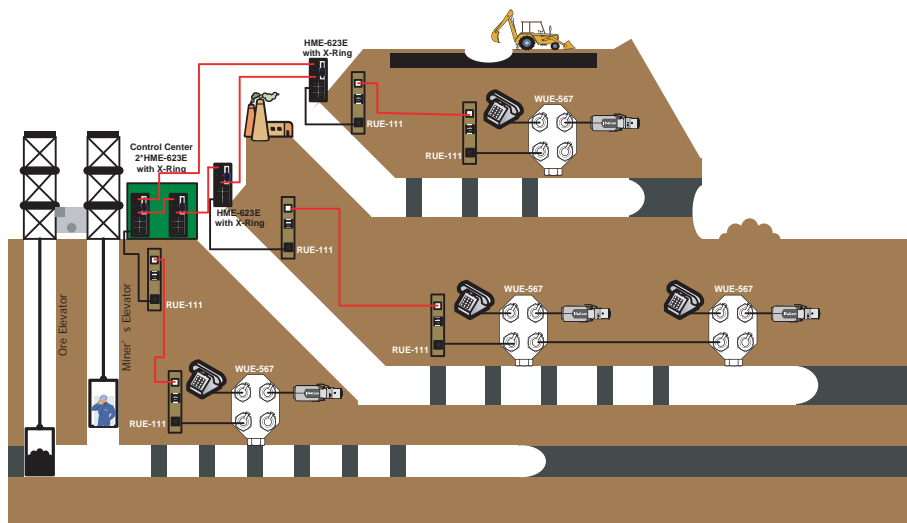
1. Good resistance to moisture and humidity
2. Resistance to extreme temperature ranges
3. Adds versatility of product
4. Easy reparability
5. Low toxicity
6. Extends product life

Applications Requiring Conformal Coating

Some applications cannot eliminate the presence of harsh environment and therefore, conformal coated switches are a must. The following examples illustrate the importance of conformal coating technology.

MINING

Application Diagram



In a mining application, the devices are exposed to dusty environments coming from extractive operations such as waste from extraction & processing of mineral resources, blasting operations and haul roads. Unlike in typical applications, the industrial devices may not be situated in decent racks or DIN Rail brackets. It is importance for the device to be encapsulated with conformal coating to protect the product against dust and corrosion which may then result to low product life. Conformal coating is ideal for mining environments to ensure non-stop operation even subjected to the toughest surroundings.

CHEMICAL PROCESSING / REFINERIES / FOOD & BEVERAGE / WATER TREATMENT

In a chemical plant or pharmaceutical, food and beverage production facilities, power plants, oil refineries, natural gas processing, water and wastewater treatment, a large amount of water vapor in the air is present. Humidity can come in the form of precipitation, dew or fog and if not properly handled, it will easily result to corrosion. Many electronic devices have humidity specifications, for example, 5 to 95%. Beyond the humidity range, moisture may increase the conductivity of permeable insulators leading to malfunction or short circuitry or shutdown of devices. In order to protect the industrial switches exposed in humid environments, conformal coating technology is the only solution to offer maximum reliability. Conformal coating is applicable in many applications that involve harsh surroundings.



About Ethernet Direct Corporation

Ethernet Direct brings a control system engineering perspective to networking technology. The principals of Ethernet Direct come from process-control and PLC system backgrounds.

The Global Ethernet Direct team covers operations from Product know-how, design implementation, quality assurance, manufacturing, logistics, sales, marketing & technical support. We are well-positioned to fulfill customers' needs and markets' demands by providing a great variety of tailor-made products and services. When you work with us, you will experience confidence and dependability. By choosing Ethernet Direct, you have chosen excellence & long-term commitment.

Our corporate headquarter is located in Taiwan with Ethernet Direct Partners across United States, Canada, Asia Pacific, Latin America, Europe, and Middle East.