



# BRAD® DIRECT-LINK® INDUSTRIAL ETHERNET SWITCHES

Engineered for Faster, Simpler Ethernet Connection in Harsh-Duty Environments.

## BUSINESS CHALLENGE

As our world becomes more connected, an increasing number of manufacturers and installers are specifying Ethernet devices for their harsh applications. Traditional implementations of Industrial Ethernet in harsh environments have meant locating Ethernet switches within protective enclosures to prevent exposure to ambient conditions and environmental influences, including:

- Temperatures in excess of 50°C or below freezing
- High relative humidity, moisture and wet conditions
- Dust or dirt that can infiltrate electronic enclosures
- Mechanical wear and tear
- High vibration
- Electromagnetic interference (EMI)

A wide range of industries require harsh-duty Ethernet equipment include mining & metals (steel), automotive, oil & gas and food & beverage. Typical applications are found in manufacturing cells, on robots or presses, on traffic signs and billboards or in commercial transportation, such as farm equipment, railways, subways, mining equipment and marinas. All of these applications are commonly exposed to one or more of the environmental conditions that benefit from a harsh-duty system design.

Without the right equipment in place, the results are longer wiring runs, more costly enclosures and protective conduit, and equipment wear and tear leading to higher maintenance costs. In order to save cost and gain flexibility it can often be more desirable to install Ethernet systems with minimal enclosures, using equipment specifically designed for use in harsh-duty ambient conditions.

## SOLUTION

Brad® Direct-Link® Ethernet switches provide customers with a faster, simpler and more secure IP67 Ethernet connection to withstand the rigors of harsh-duty environments.

Direct-Link connectors produce a tight seal when mated and provide easier system maintenance, without requiring skilled labor. Available in 5-port and 8-port versions, Direct-Link® durable switches with Ultra-Lock™ push/pull connectors, save cabling and reduce installation time and cost compared with existing in-cabinet installations. Easy configuration with advanced flexibility and diagnostics provides a superior user experience. Built in an IP67/NEMA6 rated housing, Direct-Link switches withstand dust, oil and submersion in liquids. The connections are tested to IP67K ratings to ensure operation through dust, pressure-wash

and immersion in water. Mechanical keying and radial seals eliminate the risk for operator error commonly found in other systems.

The wide -40° to 75°C operational temperature range means Direct-Link switches can be used in virtually any location. Unmanaged (store and forward) switch devices feature auto-sensing, auto-crossing and auto-negotiation (for 10/100 MBaud). Direct-Link switches are equipped with dual power connections (allowing 24V power supply redundancy) and Ultra-Lock™ M12 connectors. Narrow dimensions are sized to fit standard machine extrusions for easy mounting of the compact 5- or 8-port switches directly to the machines.



Direct-Link



Drilling Machine (Mining)



## BENEFITS AND ROI

Industrial control applications typically require complex networks with high data rates and time-sensitive devices. These networks need to be protected from harsh environmental conditions on the plant floor, such as heat, moisture, chemicals and vibration. Brad Direct-Link Ethernet switches are developed to allow customers to convert from traditional in-cabinet to on-machine mounting, moving the switch closer to the machine. Harsh-duty Direct-Link switches are typically located closer to end devices, providing greater flexibility and saving on wiring costs.

Brad® industrial Ethernet products provide solutions that enable the world's most popular Local Area Network to be reliably utilized on the factory floor and in harsh commercial environments. The Ultra-Lock™ system of connectors and cordsets complete the Direct-Link Harsh-Duty Switches line. Additionally, Molex offers a range of compatible industrial Ethernet products including physical media, IP67 I/O modules, powerful network interfaces, industrial gateways and protocol development kits to connect the most popular Ethernet industrial networks and fieldbuses. Applications include supervisory HMI messaging, data storage, real-time control, protocol bridging networks and devices, physical connections in harsh environments and I/O communications. Brad Ethernet switches and other harsh-duty products give the user a complete communication and connectivity solution to design applications to suit all industry sectors.

To learn more visit [www.molex.com/ab/directlink6972.html](http://www.molex.com/ab/directlink6972.html)