



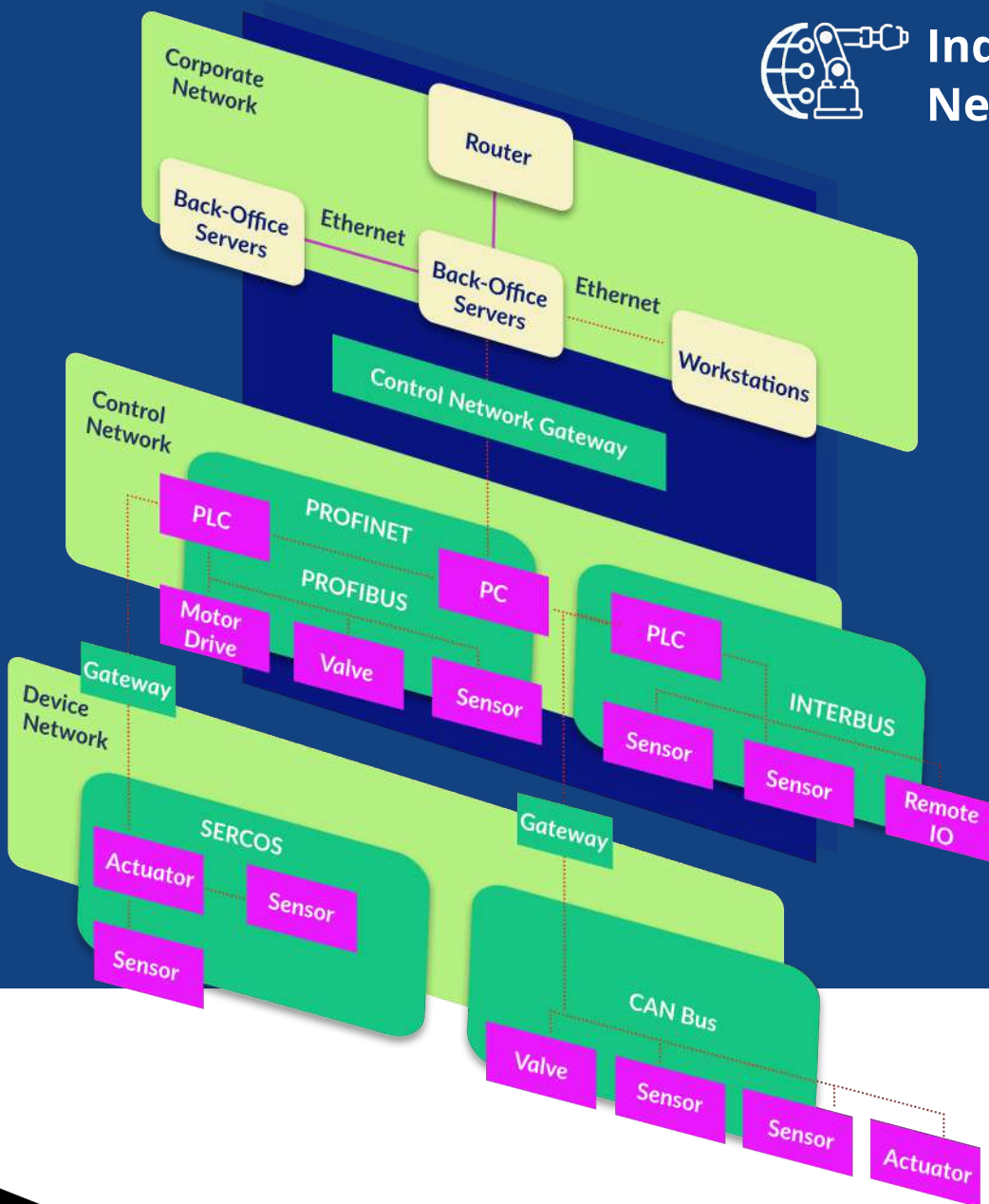
Industrial Automation Solutions



Firecomms fiber optic solutions deliver on the harsh demands of industrial automation and networking applications, ensuring the integrity of transmitted data is not compromised by high voltage environments or electromagnetic interference. Firecomms has developed light sources and communications ICs with the deep understanding of the stresses and strains placed on industrial networking applications. Our light sources use Resonant Cavity LED (RCLED) technology to ensure the strongest optical output at the lowest currents while preserving stability after decades of operation. Our robust receiver topologies guarantee error-free reception in high EMI fields.



Industrial Networking



Fiber Optic Link

Sense, Control, Communicate

In industrial automation and networking applications the factory environment can be viewed in three layers: the device network, the control network and the corporate network. Each layer operates in an environment where significant challenges must be overcome to ensure a reliable communication system. In the face of unwanted interference from ground loops and electromagnetic interference (EMI), equipment designers frequently take advantage of fiber optic connectivity to preserve and protect the equipment and communication links.

Across the device network layer of the factory floor is an array of sensors, actuators and valves that need to be controlled, switched or diagnosed. Due to the very high coupling efficiency into Plastic Optical Fiber (POF), Firecomms' 650 nm analog RLED light sources are ideal for use in sensors which use analog optical sources as light barriers or distance sensors.

Many of the device network components are connected over industry standard, field buses such as SERCOS, EtherCAT, INTERBUS or PROFIBUS. Fiber optic links over POF are used to mitigate the high EMI generated by motors or high voltage circuits at this level. Firecomms DC-5 MBd or DC-10 MBd fiber optic transmitters and receivers are perfect solutions for these field bus applications. In the case of variable-speed drives, which are common in today's factory environment.

Firecomms DC-50 MBd transmitters and receivers are used in the power stage

control link to generate control signals for high voltage IGBT/IGCT semiconductors used in these applications.

In the control network layer a mixture of field bus topologies are used increasingly with Industrial Ethernet standards, such as PROFINET, which are becoming widely adopted. Similarly in usage cases where equipment designers need the benefits of galvanic isolation, elimination of ground loops, and protection against EMI, factory planners will take advantage of fiber optic links to protect network integrity. Firecomms' range of 10/100 Mbps fiber optic transceivers are specifically designed for use within the industrial environment over POF or Plastic/Polymer Clad Silica (PCS) fibers for distances to 100 m. Our transceivers are packaged in robust OptoLock® or LC-compatible packages and are rated to 85°C for the harshest of environments.

Finally, for communication applications within the corporate network, designers rely on industrial communication standards such as Fast or Gigabit Ethernet. For these high speed networking applications, Firecomms offers transceivers in an array of form factors, ranging in speeds from 1 Mbps to Gbps for use on POF or large core glass fiber cables for extended distances.



Flexible Solutions from Firecomms

To ensure compatibility and versatility, Firecomms offers the widest choice of fiber optic solutions with our range of transmitter, receiver and transceiver products in three different connector configurations: OptoLock® LC and RedLink®

- ***Industrial Transceivers (1 Mbps-1 Gbps)***
- ***Analog Transmitters & Receivers***
- ***Industrial RedLink® Transmitters & Receivers (DC-1/5/10/50 MBd)***

OptoLock®



LC Transceivers



RedLink®



Fiber Optic Communications for Industrial Automation Applications

Firecomms is a global leader in the provision of fiber optic solutions and optical transceivers, skillfully combining state-of-the-art compound and silicon semiconductor technology with inventive small-scale integration.

Together with a far reaching network of representatives and distribution channels, Firecomms serves its global clients across a range of power and energy, industrial, transportation, medical and con-sumer markets.

Firecomms leverages its deep knowledge across our multi-disciplinary teams in developing the broadest range of fiber optic transmitters and receivers specifically suited to our target markets. With an emphasis on world class performance in reliability, Firecomms utilizes internally developed market leading Resonant Cavity LED (RCLED) photonics with ultra low power CMOS drivers in our transmitters. Together with robust receiver IC architectures, Firecomms products enable ultra low power fiber optic links, from DC up to Gigabit data rates, to ensure extended lifetimes in the harshest of environments.

Firecomms products with Plastic Optical or Plastic Clad Fiber (POF/PCS) links offer many advantages in industrial networking applications:

- **EMI/RFI immunity** ideal for industrial, harsh, noisy environments
- **Galvanic isolation** between transmitter and receiver, ideal for harsh, noisy industrial environments
- **Visible spectrum** operation enables eye-safe, fast troubleshooting
- **Low power** consumption, transmitters capable of operation at 3-4 mA
- **Resilient** to bending and vibrations
- **Durable**, flexible and lightweight
- **High reliability** for extended machine uptime
- **Industrial temperature** in range of -40 to +85° C
- **Reduced maintenance cycle time** provides up to a 20-year life-cycle on transceivers and cables
- **Simplified field installation** for easy termination of large core optical fibers in custom distances