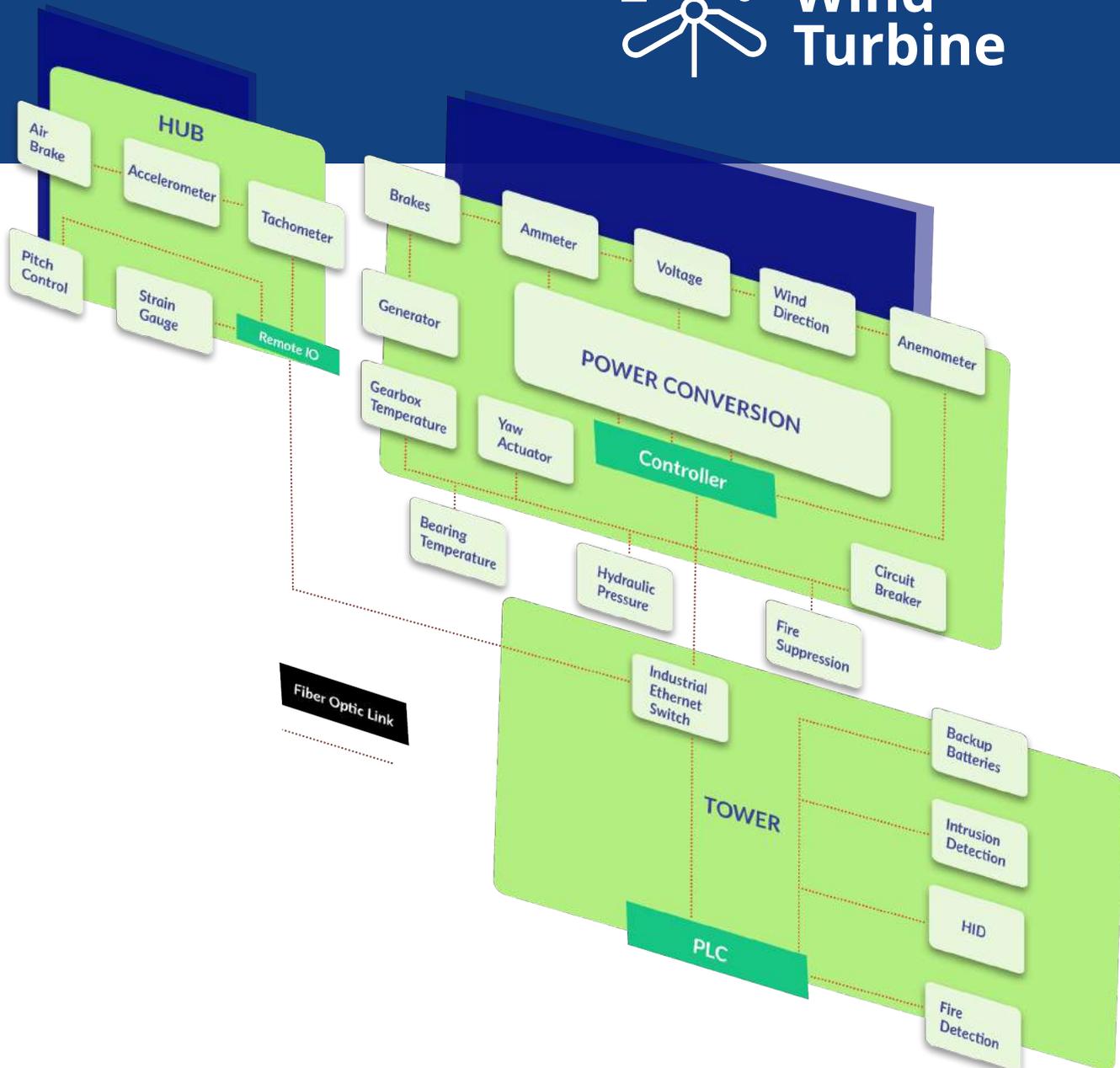




Renewable Energy Solutions



Firecomms fiber optic solutions deliver on the harsh demands of the wind and solar power industry, ensuring that the integrity of processed data not be compromised by rugged environments and extreme climates. Firecomms has developed our light sources and communications ICs with the deep understanding of the stresses and strains placed on renewable energy applications.

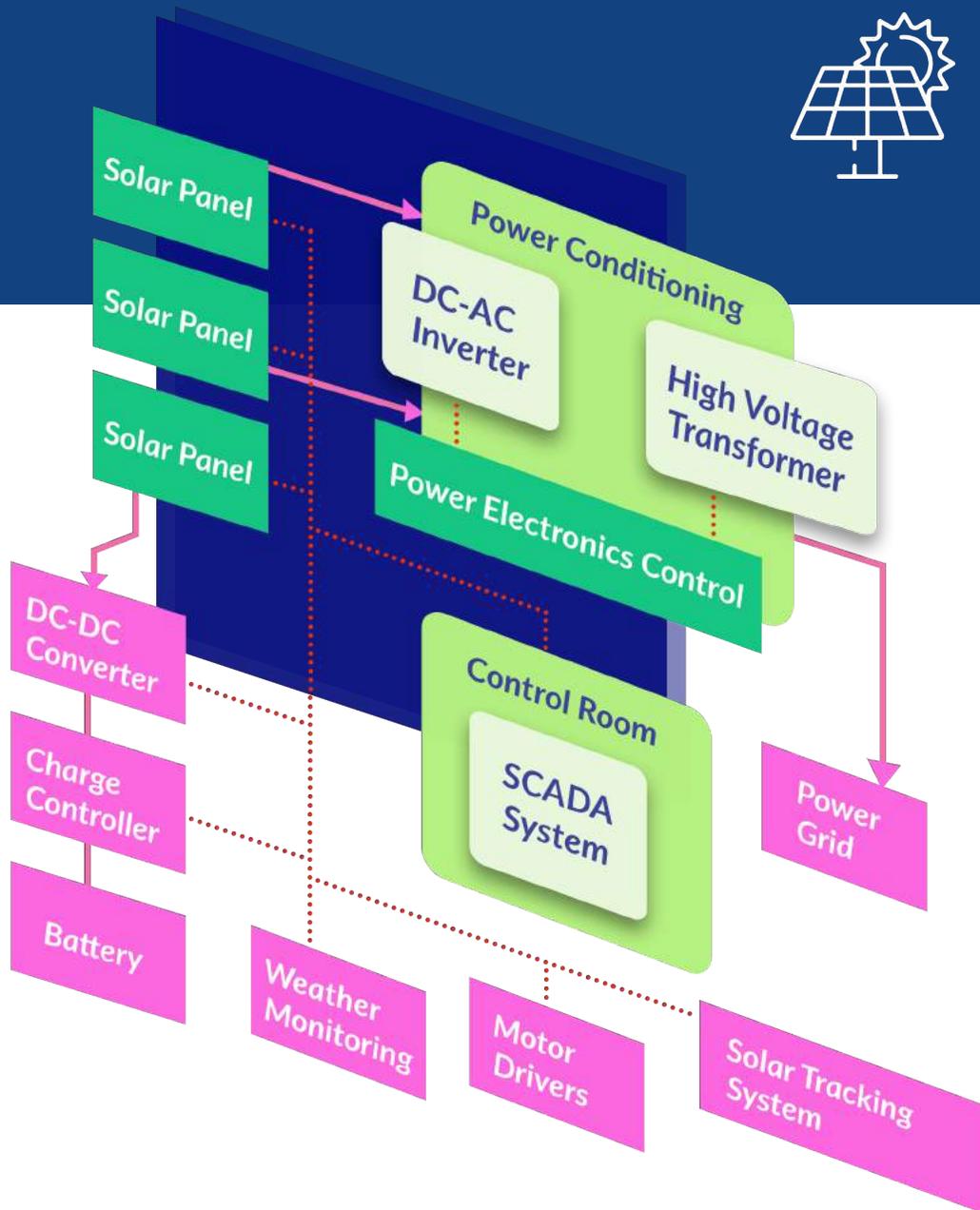


Our light sources use Resonant Cavity LED (RCLED) technology to ensure the strongest optical output at the lowest currents while preserving stability after decades of operation.

Our robust receiver topologies guarantee error-free reception in high EMI fields.



Solar Panels



Protect, Control, Communicate

In wind and solar power generation applications the building blocks of power conversion and transmission are extremely similar, even though actual power generation depends on the power source itself.

Spread across the wind and solar power generation platforms are an array of sensors that measure wind speed, blade pitch, battery status, and other critical system monitors. Typically processed on proprietary or standard communication protocols, such as RS232/485, SERCOS, PROFIBUS, EtherCAT or CAN, Firecomms' RedLink DC-1 MBd and DC-5 MBd Plastic Optical Fiber (POF) transmitters and receivers are ideally suited for these applications.

Power conversion blocks are the core of solar and wind power applications. To prevent unwanted ground loops and electromagnetic interference where stringent IEC 61000 standards apply, high voltage IGBT/IGCT semiconductors used in high power transformer or inverter circuits must be galvanically-isolated from control links. Firecomms' RedLink DC-5 MBd, DC-10 MBd or even DC-50 MBd and 125 Mbps transceivers are ideal choices for equipment designers in cases where additional control and data signals are serialized on the POF optical link.

Finally, for communication applications within the wind tower or across the solar/wind farm 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 10 Mbps up to Gbps for use on POF or on Plastic/Polymer Clad Silica (PCS) cables for extended distances.



Flexible Solutions from Firecomms

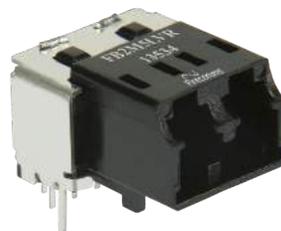
To ensure compatibility and versatility, Firecomms offers the widest choice of fiber optic solutions with our range of transmitter, receiver and transceiver products in three different connector configurations: OptoLock[®] LC and RedLink[®]

- ***Industrial Ethernet 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 Renewable Energy 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 renewable energy 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