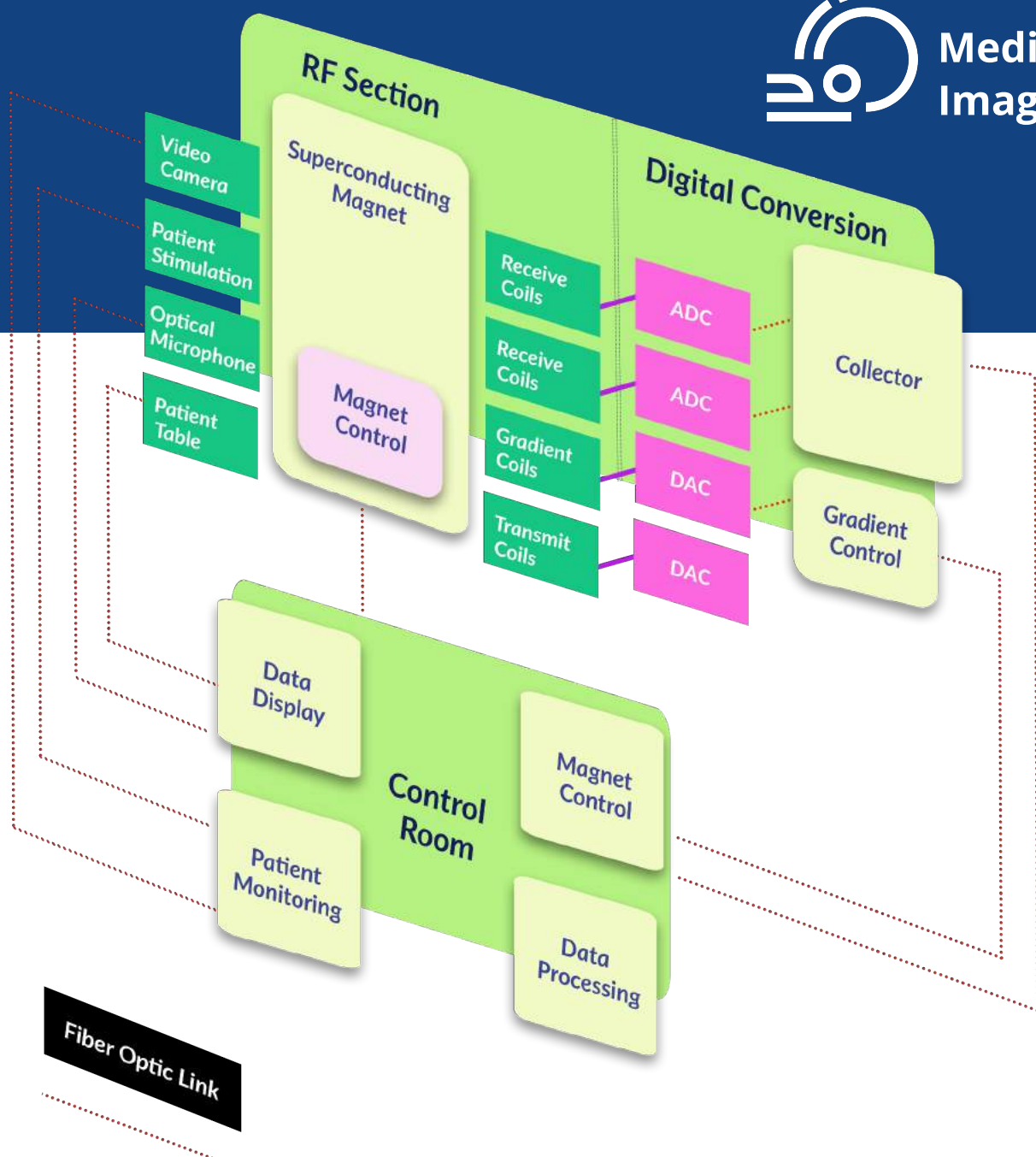




# Medical Imaging Solutions

  
**Firecomms**<sup>TM</sup>  
*enlightened innovation*

Firecomms fiber optic solutions deliver on the unique demands of the medical imaging industry, ensuring that the integrity of the processed data not be compromised by the unique operating conditions found in medical imaging applications. Firecomms has developed our light sources and communications ICs with the deep understanding of the requirements of medical imaging applications. Our light sources use Resonant Cavity LED (RCLED) technology to ensure the strongest output at the lowest currents while preserving stability after decades of operation. Our robust receiver topologies guarantee error-free reception in high EMI fields.



# Protect, Control, Communicate

Medical imaging applications such as MRI, CT-CAT scanners, PET systems or X-ray use very high voltages to power transmit coils or X-ray tubes.

Significant electromagnetic interference (EMI) is generated in the medical equipment environment so medical imaging designers look to fiber optic transmission media to protect patients and equipment against the effects of these unwanted signals.

For the transmission of control signals to motors or transmitting coils, Firecomms DC-1 MBd or DC-5 MBd transmitters and receivers are widely used with Plastic Optical Fiber (POF) and Plastic/Polymer Clad Silica (PCS) fibers to galvanically isolate the transmission while providing immunity from EMI.

Higher speed Firecomms DC-10 MBd or DC-50 MBd fiber optic transceivers are equally suited to MR magnet, patient table motor, or gradient control systems.

As it is advantageous to digitize the RF signal received in imaging applications directly in the coil to enhance the signal-to-noise ratio (SNR) of the received images, Firecomms has custom designed non-magnetic fiber optic transceivers to operate within the strong magnetic fields of MR and imaging equipment.

Our range of transceivers that operate at 125 Mbps, 250 Mbps data rates are suitable for this purpose. Taking it a step further, Firecomms Gigabit transceivers allow the aggregation of multiple data streams from the RF coils to



transmitted to the control room for data processing. Utilizing optical cables for this purpose also provides the advantage of considerably reducing the number and cost of bulky RF cables.

Patient monitoring equipment, such as video cameras, linked with fiber optic cables prevents patient injury within the coil.

Firecomms Ethernet transceivers are available in non-magnetic packages to protect against these occurrences.



## Flexible Solutions from Firecomms

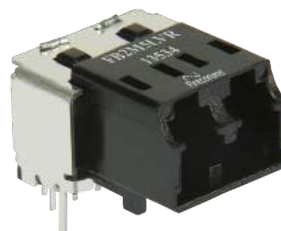
To ensure compatibility and versatility, Firecomms offers the widest choice of fiber optic solutions with our range of transmitter, receiver and transceiver products in three different connector configurations: OptoLock<sup>®</sup> LC and RedLink<sup>®</sup>

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

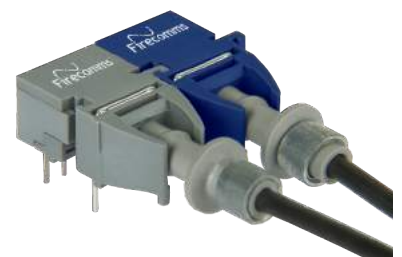
***OptoLock<sup>®</sup>***



***LC Transceivers***



***RedLink<sup>®</sup>***



# Fiber Optic Communications for Medical Imaging 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 consumer 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 medical imaging 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