



Optical Fiber in the

Green Data Center



Fiber can cut energy and cooling costs in three ways:

- lower power consumption
- less heat dissipation
- reduced cable congestion

One of the greatest challenges in today's data centers is minimizing costs associated with power consumption and cooling. Higher power consumption means increased energy costs and greater need for heat dissipation. This requires more cooling, which adds even more cost. The comparatively low power requirements of networks using high-speed optical fiber like OFS' LaserWave® Fiber offer a big advantage over copper.

Example: A 10G BASE-T transceiver in a copper system uses about 6 watts of power. A comparable 10G BASE-SR optical transceiver uses less than 1 watt to transmit the same signal. The result: each optical connection saves about 5 watts of power. Data centers vary in size, but if we assume 10,000 connections at 5 watts each, that's 50 kW less power — a significant savings opportunity thanks to less power-hungry optical technology.

And there's more: The power used by these transmitters is dissipated as heat, which must be removed from the room in order to keep the electronics cool. A recent EPA study shows that each watt required to operate data center equipment will require another watt for cooling and power delivery. This means that an additional 50 kW of power is required for that same 10,000-port data center that uses copper.

Finally, consider cable size and its effect on airflow. A duplex 2.0 mm fiber jumper occupies approximately 8 mm². A single Cat 6A cable is approximately 9 mm in diameter, and occupies approximately 64 mm². If 40 servers are mounted in a rack and each has one or more network connections, it's easy to understand how copper cabling can cause congestion. Fiber cabling can greatly reduce that congestion while allowing better airflow and cooling.

To learn more, visit www.ofsoptics.com/fiber or contact us at 508-347-8590 and ask about our high-transmission fiber solutions for data centers.



LaserWave® Fiber
requires much less
power than copper