

ECOUPLED™ TECHNOLOGY EXPLAINED



What is eCoupled technology?

eCoupled technology is intelligent wireless power based on inductive coupling that allows for safe and efficient power transfer without wires.

How does it work?

eCoupled technology is based on the principle of near-field resonant magnetic induction. With magnetic induction, electricity travels via magnetic fields instead of through a physical connection of conductive materials. Traditionally, electronics have used a power cord to transport power to the electronic circuits of the device. From there, a transformer uses magnetic induction to form an inductive link that safely transfers power between the internal circuits. eCoupled technology simply replaces the conductive power cord with another inductive link.

Just like a transformer, eCoupled technology uses coils to transmit energy. One coil in the eCoupled power supply generates a magnetic field at a frequency that will resonate with a second coil in a device enabled with eCoupled technology. This resonant magnetic field causes electricity to be generated in a device with the second coil. One eCoupled power supply can charge or power a multitude of eCoupled-compatible devices.

eCoupled technology overcomes the limitations of spatial rigidity, static loads and unacceptable power losses. It intelligently adapts to multiple load – from milliwatts to kilowatts – and spatial configurations while maximizing energy transfer efficiencies by as much as 98%, making eCoupled technology comparable to hardwired connections.

What is the value?

Wireless power is a tremendous step forward in power supply/transfer for any industry and application. In addition to the convenience of eliminating incompatible power cords, it also enables electronics to be safer, more reliable and more energy efficient. With the introduction of wireless power standards for low power devices by the Wireless Power Consortium, the doors are now open for true global interoperability between device manufacturers and OEMs worldwide—a vital step in driving widespread consumer adoption of wireless power.

How is eCoupled unique?

Recognizing the significant limitations of other wireless power technologies, Fulton Innovation designed eCoupled technology with sophisticated communication and control algorithms enabling the technology to efficiently transfer power through the use of safe near-field magnetic coupling.

Examples:

- If no eCoupled-enabled device is present, no power is supplied.
- If there is an interfering object present, the power source shuts off automatically.
- If an eCoupled-enabled device is present but it is already fully charged or turned off, the same is true – the power source shuts off automatically.
- Its resonant magnetic field means that there is very little interference with mobile phones and other wireless devices.
- Additionally, eCoupled technology can transmit power at up to 98% efficiency – which is better than many AC adaptors.

How was it developed?

eCoupled technology was originally developed by Fulton Innovation scientists in the late 90's as a safe way to wirelessly power a 38W UV lamp in the eSpring™ Water Purifier. As the technology was adapted to solve the challenges with the eSpring system, the team soon realized the true potential of wireless power and its broad applicability to virtually any electronic power system. Additional enhancements and development of the technology ensued (and continue to this day), a strong IP portfolio was established and the team at Fulton Innovation began to build relationships with manufacturing partners who were interested in realizing the significant benefits eCoupled wireless power technology enables – from design freedom and differentiation to product safety, durability and reliability.