

Implantable Bioelectronic Outlet for Medical Device Implants

Tech ID: 34877 / UC Case 2026-741-0

BRIEF DESCRIPTION

A soft, implantable electrical access port enables repeatable, direct connections between implanted bioelectronic devices and external instruments.

FULL DESCRIPTION

The implantable bioelectronic outlet (IBO) is a tissue-like interface placed beneath the skin to provide electrical access to implanted devices. Its conductive-polymer-coated porous matrix is enclosed in a hydrophobic elastomer jacket, supporting repeated insertion of external contacts for power delivery, data transfer, recording, stimulation, diagnostics, and maintenance. In animal studies, the interface remained functional after one year with minimal tissue effects.

SUGGESTED USES

- » Neurostimulation and other implantable therapeutic devices.
- » Chronic neurophysiological recording and monitoring systems.
- » Implantable sensors and bioelectronic diagnostic platforms.
- » External power, data, and maintenance interfaces for medical implants.
- » Research and clinical systems requiring repeated access to implanted electronics.

ADVANTAGES

- » Enables on-demand, repeatable direct electric connections to implanted electronics.
- » Supports bidirectional transmission of signals and power, from low-voltage physiological recordings to high-speed digital signals and high-current delivery.
- » Soft, tissue-like construction is designed to tolerate repeated contact insertion without crack propagation.
- » Scalable multi-contact configurations can provide independent electrical channels.
- » Demonstrated long-term function with minimal tissue effects in animal models.

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