

# Electronic Product Design

Ionocom designs electronic products for clients. We are experienced in analog and digital designs, embedded processors and firmware. We specialise in radio, analog and low-power projects.

## Electronic Design

With a comprehensive set of design services backed up by creative professionals, proven procedures, and modern tools and equipment, Ionocom follows a well-tested design process that ensures a high quality result at a reasonable price.

- Radio
- Analog and Baseband
- Digital Logic
- Embedded Processors
- Low-Power

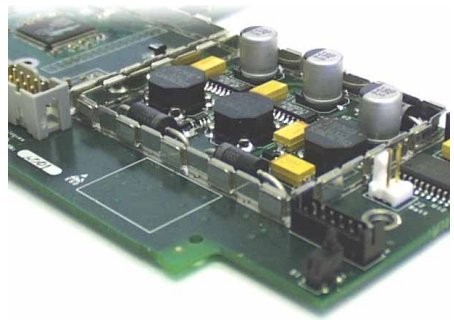
Capabilities include schematic capture, simulation and modeling, PCB design, prototype assembly.

## Equipment

Ionocom has a comprehensive set of digital, baseband, RF and environmental test equipment.



- **Design Custom Electronics**
- **Deliver Production-Ready Drawings, Firmware and Prototypes**



## Computer Aided Design

Ionocom uses industry-standard CAD tools for schematic capture, simulation and PCB design, and can share 2D and 3D mechanical data with mechanical designers.

## Firmware Development

Ionocom offers development of firmware to support designs that include embedded processors. Capabilities include C and Assembly language.

## Mechanical Design

Ionocom offers basic mechanical design. Ionocom can work with other professionals where Industrial Design and custom-tooling is needed.

## Documentation

Ionocom delivers high-quality, production-ready drawings and technical documentation, and can write end-user documentation.

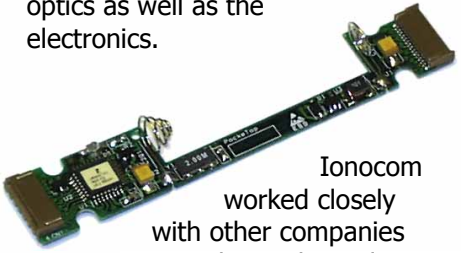
# Case Studies

## Wireless PDA Keyboard

Ionocom designed the electronics for this infrared wireless keyboard for a local start-up.

Important features were small size and very low power consumption for use with a single AAA cell.

Ionocom designed for low manufacturing cost, and helped to optimise the performance of the optics as well as the electronics.



Ionocom worked closely with other companies providing industrial design and software development, and provided the client with overall design advice and assistance throughout the project.

The unit entered volume production in the far-east and over 100,000 were manufactured.

## 433MHz Radio Asset Tracking

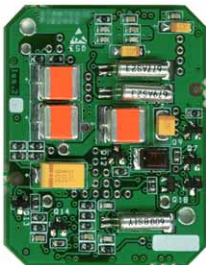
This 433MHz radio asset tracking system includes a low-power transmitter, a high-performance dual-channel receiver, and a miniaturised receiver small enough to be fitted inside a cell-phone.

A desktop unit includes a central processor, display, keypad, battery backup, and both telephone line and cellular radio modems.

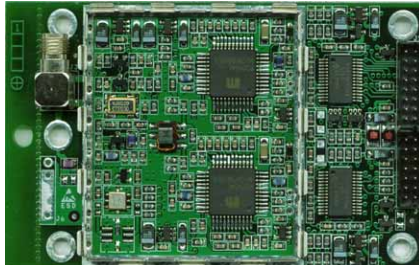
The system is designed to meet FCC and European regulatory standards.

The dual-channel receiver uses one third the current of a previous design and doubles the probability of receiving a transmission. The battery life of the transmitter is much greater than a previous design, giving the client an advantage in the market.

Transmitter



Dual Channel Receiver



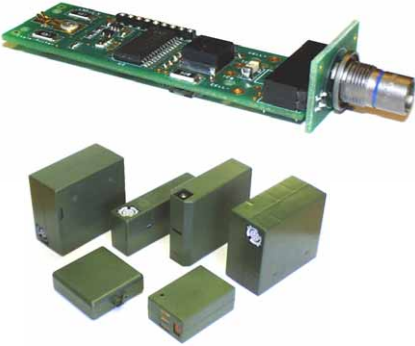
Mini Receiver



## Military Battery Packs

Ionocom has designed many circuit boards for inclusion in professional and military battery packs.

The circuit boards all provide protection and safe end-of-life discharge of the battery. The most sophisticated ones provide an indication of state-of-charge on a



custom LCD, and allow querying of the battery over a "Smart Battery" SMBus interface. All the electronics are designed for the harsh military environment.

Ionocom designed the electronics and wrote the firmware, as well as providing factory programming and production test solutions.

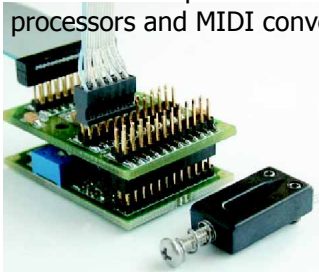
Having Ionocom handle the electronics design allows the client to concentrate on manufacturing batteries.



## Professional Guitar Audio

Ionocom has designed several pre-amplifiers for a manufacturer of professional piezo guitar pickups.

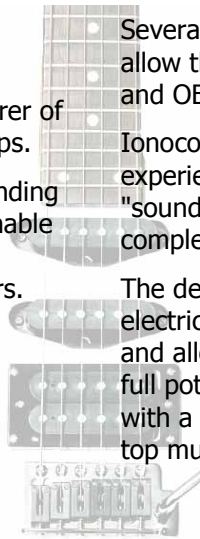
The pre-amplifiers provide blending and switching features, and enable use with "hexaphonic" sound processors and MIDI converters.



Several versions of the designs allow the client to sell to both retail and OEM customers.

Ionocom's analog design experience produced designs that "sound good" while keeping complexity down.

The designs solved several electrical and mechanical problems, and allowed the client to realise the full potential of the piezo pickups with a product range attractive to top musicians.



## Process

Most projects start with a Design Brief or simply a verbal description of requirements from the client. Ionocom works with the client to develop a written Specification and Statement of Work.

Ionocom works from the Specification, performing circuit design, component selection, schematic capture and printed circuit board design, writing firmware and performing integration and testing.

Ionocom has the facilities to produce prototype units, including leaded and surface mount assembly equipment. A full set of test

equipment allows the performance of prototypes to be tested against the specification. An in-house environmental chamber facilitates temperature testing.



## Delivery

Ionocom delivers production-ready drawings, documentation and firmware. Clients can manufacture the products themselves, or use a Contract Electronics Manufacturer. Ionocom can suggest local CEMs and has good working relationships to ensure a smooth transition from design to production.

## Test Systems

Ionocom offers specification and design of automatic test systems for supporting designs in volume production.



## Project Management

Ionocom staff have many years experience in managing design projects. Ionocom follows a consistent design process that ensures clear communications, fast time-to-market, and a high quality result at a reasonable price.

## Electronic Product Design with Professional Results

Call today to discuss your project and get started.

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