



**OFFSHORE
ELECTRONICS**

WHITE PAPER **REAPING THE BENEFITS** **OF CONTRACT** **MANUFACTURING**

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A best practice guide to contract electronic manufacturing for small and medium sized enterprises

The rise of Contract Electronics Manufacturing

Contract Electronic Manufacturing (CEM) or Electronic Manufacturing Service (EMS) is a unique resource, and can help smaller companies save money and offer certified products that meet the quality standards demanded by the wider market.

The notion of sub-contracting is ingrained within the manufacturing community, but this was not always the case. Back in the Margaret Thatcher years, when even automotive companies produced basic parts, everything was manufactured in house. This applied to all types of production, from mechanical and electronic assemblies through to full product build.



The contract electronic manufacturing/electronic manufacturing service (CEM/EMS) industry initially grew out of excess capacity at original equipment manufacturers (OEMs) in the 1970s and 1980s. At that time, OEMs had invested significantly in production equipment, such as auto insertion machines, in order to build their products efficiently and competitively. After the boom years of the 1980s many of these manufacturers had spare capacity and this was rented out to companies who would not have been able to otherwise justify the initial capital investment.

Back then, electronic products were much simpler and could largely be built by hand. Now, electronic production is far more sophisticated, components are miniaturised and complex, and the production process machinery required is extensive and expensive. Factor in the added yet necessary burden of quality control, regulation and compliance, and modern sub-contracting involves far more than simply renting out some spare machine capacity. Today, it is very much recognised as a specialist task.

Outsourcing for SMEs

CEMs are often seen as being exclusively for large companies. However, this is not the case.

Today, OEMs must comply with a wide range of product related manufacturing regulations, and this can be a huge challenge for a small design-led company. The advantage of using a CEM as a manufacturing partner is the ability to use their expertise to advise on design for manufacturing best practice and ensure that the product is manufactured correctly and efficiently using approved components and processes. Apple, the biggest and most successful electronics company in the world, concentrates on two things: it designs innovative products; and markets and sells them. Everything in the middle that is not a core process – i.e. the manufacturing and process control – is outsourced to a specialist contractor or manufacturing partner. The same principle also applies to smaller, specialised OEMs: concentrate on what you are good at and outsource the rest.

A CEM partnership can lend credibility and market acceptance for smaller electronics producers. If the business is working in a modest facility, making products by hand, they will often struggle to achieve the repeatability and product quality demanded by the end customer. Compliance, quality accreditations and staff training can potentially become a significant time consuming burden for the smaller company as they look to grow.

Working with an experienced CEM can bring economies of scale for the smaller OEM. With a wide range of customers, purchasing is optimised and better pricing usually achieved across common components where volumes impact costs.

Recap: Four reasons to outsource your electronics manufacturing

- CEMs can advise on the manufacturing design and ensure that approved components and processes are in place
- SME's can focus on their core process and improve their business
- SME's will increase credibility and market acceptance
- Smaller OEM's will benefit strongly from economies of scales

Starting small

Many of our relationships and expectations start small – often with a requirement for just a few assemblies for a new product or a small pre-production batch to prove our capabilities. From the initial contact and first product produced we will be looking to develop a mutually beneficial relationship, gain your trust and become your manufacturing partner of choice. As the partnership develops we will actively work with you to rework or redesign your products for automated manufacturing and test, improve the product reliability and take unnecessary cost out as a function of the partnership.

Defining factors for a long-lasting business relationship

- The values of both companies align
- The companies' philosophies match
- The CEM understands the SME's business needs
- The CEM makes a considerable effort to get to know the SME's employees, company structure and industry

IP protection

One hurdle that smaller firms and design teams need to overcome is the fear of losing their intellectual property (IP). To them, their IP is everything – and the last thing they want is for it to be copied, or to have designs and technology stolen. It's a very real fear – so they must be confident that a manufacturing partner is honest, trustworthy and have no conflicts of interest.

It is understandable that small firms may initially shy away from taking on a contract manufacturer, when they are coping with production by themselves. However, the greater efficiencies that an experienced CEM can bring – such as economies of scale, testing expertise and a rigorous electronics production process – can lead to significant cost savings and vastly improved product quality.



About Offshore Electronics

Offshore Electronics is a leading CEM company providing complete and cost effective contract electronics engineering solutions for any outsourced electronic manufacturing requirements. Offshore Electronics works in partnership with customers in a broad range of industries, ranging in size from SMEs to major corporates. The company provides a complete service, from design for manufacture to prototypes, through to electronics and electro-mechanical production and assembly, test and quality control, to customised packaging and delivery.