ELECTRONICS
sourcing
AN MMG PUBLISHING TITLE
NOVEMBER 2022
UK & IRELAND

Sustainable electronics on the RISE

page:38

Digi-Key ELECTRONICS
TRUST
STARTS HERE
Visit digikey.co.uk/quality today

TRUST
STARTS HERE

We hold ourselves to rigorous standards of excellence, so you can be confident your order consistently contains genuine, high-quality products you can trust.

Visit **digikey.co.uk/quality** today, or call 0800 587 0991.

Digi-Key ELECTRONICS

Digi-Key is a franchised distributor for all supplier partners. New products added daily. Digi-Key and Digi-Key Electronics are registered trademarks of Digi-Key Electronics in the U.S. and other countries. © 2022 Digi-Key Electronics, 701 Brooks Ave. South, Thief River Falls, MN 56701, USA

ECIA MEMBER
Supporting The Authorized Channel

On the cover – November 2022

Sustainable electronics on the rise
page 38

Editor's Word

Peak choice

One of my favourite phrases is 'nothing stays the same forever'. I use it as a shield against unwelcome change. Today, the change I'm defending myself against is 'choice'. For my entire life, every strata of society—education, employment, consumerism, politics, healthcare and more—has worked double-time to convince me that, without sufficient choice, my life would somehow be lacking.

However, I imagine that like most things, choice follows a bell curve. Too little choice stifles innovation and condemns people to inferior products and services. Too much choice adds unnecessary cost, complexity and waste. Somewhere in the middle lies optimum choice.

Who remembers the 'lot size one' frenzy of the 1990s? Every configuration, of every product, was going to be available to everybody, immediately. All this required was immaculate levels of information and perfect manufacturing processes, all operating across pristine global supply chains. Some sectors got close and many others were working towards that goal. Then came the pandemic.

Over recent weeks, my choice of camera, dent puller, tumble dryer, dehumidifier, wall heater, soap and toothpaste, was no choice at all. Versions of all the above were available, just not my preferred ones.

Time will tell, but I think we reached peak choice a couple of years ago. I imagine optimising choice would simplify product design, purchasing, manufacturing and maintenance. Maybe industry will refocus on 'software defined products', where hardware is standardised and a line of code here and there provides the differentiation

Jon Barrett

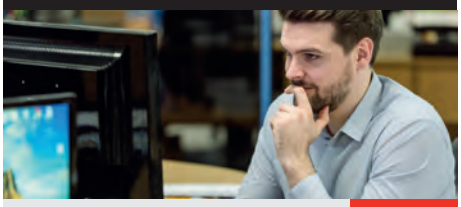
NEWS

Enclosure agreement includes custom solutions 04

CONNECTORS

Reliable interface in medical devices 09

CEM SOURCING



Overcoming supply chain issues 15

ENCLOSURES

Ready to reduce assembly time 32

BUYERS GUIDE

All the facts and figures to help you buy 46

Contact

ELECTRONICS sourcing — MMG PUBLISHING

EDITORIAL
Managing Editor: Jon Barrett
jonb@electronics-sourcing.co.uk
Contributing Editor: Amy Barker
amyb@electronics-sourcing.co.uk

ADVERTISING
Director of Sales: Emma Evernden
emma.evernden@electronics-sourcing.co.uk
Sales Executive: Jim Powell
jim.powell@electronics-sourcing.co.uk

PRODUCTION & DESIGN
Production & Design Manager: Josh Hilton
josh.hilton@electronics-sourcing.co.uk
Junior Creative Artworker: Tom Claydon-Smith
tom.claydon-smith@electronics-sourcing.co.uk

CIRCULATION
Circulation Manager: Vicky Leary
vicky.leary@electronics-sourcing.co.uk
Circulation Account Manager: Liz Poole
liz.poole@electronics-sourcing.co.uk

PUBLISHER
Mark Leary
mark.leary@electronics-sourcing.co.uk
Director of Operations: Denise Pattenden
denise.pattenden@mmgpublishing.co.uk

Issue 198, Vol.18 No.11

Published 12 times per year
by MMG Publishing Limited
ANNUAL SUBSCRIPTION:
EU Countries £60 Rest of World £90

MMG PUBLISHING LTD
Suite 2, 1-3 Warren Court, Park Road,
Crowborough, East Sussex TN6 2QX
Tel: +44 (0)1892 613400
Fax: +44 (0)1892 613402
@Electrosourcing

Printed by: Pensord Press Ltd
Electronics Sourcing is printed on sustainably sourced paper stock
ISSN 2043-9504

© 2022 MMG Publishing Ltd

ELECTRONICS SOURCING IS INDEPENDENTLY ABC AUDITED 2005/2021

ecia Connect. Influence. Optimize.

ecsn member

Articles appearing in this magazine do not necessarily express the views of the Editor or the publishers. Every effort is made to ensure the accuracy of information published. No legal responsibility will be accepted by the publishers for loss arising from articles / information contained and published. All rights reserved. No part of this publication may be reproduced or stored in a retrieval system or transmitted in any form without the written consent of the publishers.

NES News

View current editions online

www.electronics-sourcing.co.uk

Enclosure agreement includes custom solutions

Princeps has signed an authorised distribution agreement to supply Hammond Manufacturing's complete portfolio of electrical enclosures, which can also be modified and customised in-house to suit specific customer requirements.

Princeps' sales director, David Nash, said: "Hammond enclosures are renowned for their variety and quality and we are delighted to have been appointed as a Hammond authorised distributor, which further enhances our capability to provide complete customer solutions.

"Hammond's in-house customisation service saves time and effort. Instead of having to carry out modifications or sub-contract work out themselves, we work with our customers to understand their requirements, assist with modification drawings if necessary and supply the Hammond enclosure with everything done. This totally streamlines processes for customers and saves time, effort and cost.

"Recently, for example, we were able to save one customer in the rail industry 60 per cent compared with the cost of buying a standard enclosure and having modifications carried out by a third party."

www.princeps.co.uk

Global MRO supply chain solution

RS Group has united its global maintenance, repair and operations (MRO) supply chain solutions business into a single brand, RS Integrated Supply. Previously trading as IESA and Synovos, the transition is the first step in the Group's consolidation of its operating brands under a unified RS identity.

RS Integrated Supply provides outsourced storeroom management and procurement services designed to drive sustainable productivity and reliability for MRO supply chains. Through its global operation, RS Integrated Supply serves multi-site industrial organisations across North America, the UK, Europe and other global markets.

Procurement and storeroom solutions are built on proprietary digital platforms that consolidate information and drive improvement. Standardised technology, platform integration and streamlined services are designed to improve accessibility and efficiency, ensuring consistent quality across global organisations. The platforms deliver predictive intelligence in addition to historical data, with reporting and insight provided through data collection, cleansing and standardisation.

www.rs-integratedsupply.com

Cost, size and thermal advantages

Mouser is now stocking Qorvo's QPF4656 and QPF4730 Wi-Fi 6 and 6E (802.11ax) front end modules. The FEMs are designed to deliver up to 25 per cent more power efficiency than current competitive solutions. Their small form factors and integrated matching help minimise layout area while providing cost, size and thermal performance advantages.

Applications include access points, residential gateways, customer premises equipment and IoT devices.

Both FEMs incorporate a single-pole two-throw switch and a by-passable low noise amplifier with a 5.945 to 7.125GHz (QPF4656) or a 5.1 to 7.125GHz power amplifier (QPF4730). The FEMs provide transmit gain values ranging from 30 to 32dB and receive gain of 14.5dB, with noise figures of 2dB.

The FEMs include die-level filtering for second and third harmonics, 2.4GHz rejection for DBDC operation and a voltage detector for application feedback. The QPF4632 also includes a coupler RF power detector.

mouser.co.uk

TrustedParts.com

Built by the companies you know and trust.

tti The Electronic Component Specialists

AVNET Reach Further™

MOUSER ELECTRONICS

FUTURE ELECTRONICS

Digi-Key ELECTRONICS

RS

MASTER ELECTRONICS

Farnell AN AVNET COMPANY

online components.com

FACTORY AUTHORIZED

- ✓ Best defense against counterfeit components
- ✓ Proper packaging and handling
- ✓ Fully warrantied and supported by the manufacturer

Search authorized distributors at TrustedParts.com

NES News

In Brief

Reliable and efficient
Murata has launched the Type 2AB UWB + Bluetooth Low Energy, one of the smallest ultra-wideband modules currently available measuring 10.5 by 8.3 by 1.44mm. A combination of low power consumption with high accuracy and reliability results in an efficient and cost-effective variant for compact and battery-powered IoT devices.
www.rutronik24.com

Buying into interconnect
Trexon has acquired Intelliconnect, a supplier of RF connectors, adapters and cable assemblies. Trexon's president engineered products division, Dr Nildeep Patel, said: "The addition of Intelliconnect brings a customer-centric organization with a level of expertise and experience that aligns with the Trexon strategic vision of delivering application specific solutions."
trexonglobal.com

Quicker time-to-market
Avnet has announced a distribution agreement with Andapt, a programmable power management semiconductor company. Avnet's senior vice president, business development, Alex Iuorio, said: "Andapt's programmable PMICs will provide Avnet customers with similar benefits as PLDs/FPGAs such as increased design flexibility and configurability, reduced part count and board space and quicker time-to-market."
avnet.com

Power and precision
TT Electronics has announced its TFHP series thin film, high power chip resistors. The product family is said to combine high power and high precision in a single resistor, capitalising on aluminium nitride (AIN) ceramic substrate with nearly six times the conductivity of alumina, the conventional substrate material for chip resistors.
www.ttelectronics.com

Double the stock of automotive parts

TTI has increased its stock of TE Connectivity's automotive parts giving customers an edge and helping speed time-to-market. Over 2,000 part numbers are ready for shipment. TTI Europe is now a preferred partner for TE automotive products and the largest stocking distributor for the company's interconnection systems and relays covering internal combustion, hybrid and electric vehicle platforms.

As an example of the products on offer, TE's Timer interconnection system features a unique contact design and is available in sealed and unsealed versions with a current-carrying capacity of up to 78A.

The system can house up to 100 contacts and covers various applications including powertrain, safety/security, convenience, driver information and body/chassis systems.

Likewise, the AMP Superseal is designed for applications where a reliable, water-tight connection is required. The IP67 sealed family is designed to perform in harsh engine mounting and under-the-hood environments. Superseal 1.0 is designed for 1mm wire-to-board applications, while Superseal 1.5 suits 1.5mm wire-to-wire applications.

www.ttieurope.com

Terminal blocks shipping from stock

BEC Distribution has announced a UK distribution agreement with BlockMaster Electronics, a US-based terminal block manufacturer. The terminal blocks are an addition to BEC's Select range of alternative passives, designed to offer affordable, high-quality alternatives to major manufacturers.

The blocks are available on short lead times, with many ex-stock, offering a fast-turnaround alternative. The blocks range from 1 to 380A, including PCB styles up to 150A and PCB screw terminals from 25 to 150A. There are over 9,500 part numbers, including PCB, feed-through and power distribution types, flange and safety cover options.

BlockMaster Electronics has manufactured termination connection solutions to electrical and electronic markets since 1994. Products include: single-deck and multi-deck low power terminal blocks; high and medium power terminal blocks; barrier terminal blocks; screwless terminal blocks; clear connects; terminal strips; and spring terminal blocks.

www.bec.co.uk

Third factory supports rising power demand

XP Power has begun construction of a new manufacturing facility in Perak, Malaysia. The Asia III site will be the company's largest facility and will play a key role in XP Power's global strategy, helping increase production capacity to support surging demand across regions.

Construction began in September, with the facility fully operational by Q2 2024. The factory complements the company's existing sites in Vietnam, China, US and Germany, enhancing supply chain resilience and flexibility.

XP Power's CEO, Gavin Griggs, said: "The demand for our mission-critical power products is very strong across the entire power range and set to increase over the next decade. Before deciding on Perak, we carried out an extensive global study to identify the best location for the site. The combination of the location, availability of key talent, environmental credentials, and welcoming approach to investors made it an easy choice."

www.xppower.com

Simplify your BOM process with Mouser's intelligent FORTE tool

As your design heads towards completion and becomes production-ready, the chore of creating the bill-of-materials (BOM) takes hold. A crucial part of any new product development and the key to unlocking future profits, creating the BOM demands diligence. BOMs may potentially include thousands of components, each with individual part numbers, challenging purchasing professionals with an arduous task of obtaining pricing and availability information.

Churning through each component becomes a repetitive task beset with part number and code challenges. For example, parts flagged as no longer suitable for new designs require purchasing professionals to go back to engineering to check alternative part numbers. Even simple part code errors introduced when creating the BOM can take ages to rectify.

So what can you do? Save time, improve order accuracy and increase purchasing confidence with Mouser Electronics' FORTE intelligent BOM tool.

FORTE, the intelligent BOM tool from Mouser

FORTE removes the uncertainty of specifying and purchasing semiconductors and electronic components. With its time-saving import features, you can upload your BOM from a spreadsheet or CSV file or cut and paste it from another document. A clean, easy-to-understand interface enables adding, amending and deleting parts and checking price breaks for multiple quantities without committing to changing the BOM.

FORTE's intelligent part number capabilities can analyse partial part numbers and part descriptions to check for correct part numbers and suggest alternative components. FORTE accesses Mouser's online database of millions of orderable part numbers to recommend alternatives that reduce product lifecycle risks.

FORTE is free to use, and no subscription is required.

Getting started with FORTE

It couldn't be easier to start experiencing a more straightforward way to research and purchase electronic components. To change your BOM experience for the better and discover FORTE's intelligent and time-saving features, you just need to log into your My Mouser account. Once logged in, select whether you wish to upload a spreadsheet document in a Microsoft Excel or CSV file format or paste in part numbers or quantities as illustrated in Figure 1. To start the import process, simply assign each column of your import file to the nominated BOM heading (part number, quantity, etc.). FORTE then processes your BOM file and displays instances where a product match hasn't been found, notifies minimum order quantities, and highlights products with lead times and products at the end of their production life (Figure 2).

Take control of your BOM and start using Mouser's intelligent and comprehensive BOM tool today.

www.mouser.co.uk/bomtool

About Mouser Electronics

As a global authorised distributor, Mouser offers the world's widest selection of the newest semiconductors and electronic components – in stock and ready to ship™. Mouser's customers can expect 100% certified, genuine products that are fully traceable from each of its manufacturer partners. To help speed customers' designs, Mouser's website hosts an extensive library of technical resources, including a Technical Resource Centre, along with product data sheets, supplier-specific reference designs, application notes, technical design information, engineering tools and other helpful information.

Mouser.com is available in multiple languages and currencies and features more than 6.8 million products from over 1,200 manufacturer brands. Mouser offers 27 support locations worldwide to provide best-in-class customer service in local language, currency and time zone. For more information, visit https://www.mouser.com/.

Exclusively sponsored by FUSION WORLDWIDE

WHAT CRYPTO VOLATILITY MEANS FOR THE ELECTRONIC COMPONENT SUPPLY CHAIN

As global economic downturn affects consumer markets, and cryptocurrency itself goes through some major changes, a new crash in demand is once again influencing electronic component supply. As crypto continues to shift availability and pricing of components, companies should track its movements to secure their own supply chains.

How Has Cryptocurrency Influenced the Semiconductor Industry?

The crypto market is intricately woven into supply and demand for the semiconductor industry, and crypto's fluctuating value has shown the effect it can have.

In 2017, crypto miners stockpiled supply of Nvidia's GTX 10 series and AMD's RX 500 series graphic cards and consequently drove them into a shortage. Nvidia tried to discourage crypto mining customers by reducing their chips' mining efficiency by 50%, but they continued to buy the parts regardless and drove up pricing.

During the COVID-19 pandemic, consumers upgraded computers for both professional and personal use. This, combined with a boom in crypto demand, caused component prices to skyrocket while supply dwindled. Manufacturers' suggested retail prices (MSRP) for GPUs tripled during periods of intense demand. Supply decreased to the point that consumers were forced to pay scalpers outrageously marked-up prices.

By 2021, crypto mining comprised 35% of global consumer demand for GPUs. The number of orders for DRAM components, GPUs, plus other advanced chips and wafers overwhelmed manufacturers and once again caused a supply race.

How Proof-of-Stake Changes the Game

Ethereum was the top consumer of high-end GPUs through 2021, but a new "proof-of-stake" mining system has eliminated the need for GPU cards. In preparation for this process, demand for GPUs fell rapidly in the beginning of 2022. The first two months of the year saw Nvidia's sales of GPU cards drop by 75% in comparison to the year prior.

Additionally, proof-of-stake is predicted to reduce global electricity consumption by 0.2%. This comes just in time, as environmental policies have started to focus on crypto's excessive use of energy. Previously, bitcoin mining operations alone accounted for 2.2 GW of total energy consumption in China. China's recently announced carbon neutral policy put a target on crypto mining, making it a popular target for cutbacks in energy consumption.

Environmental policies like this, combined with the drop in demand caused by global economic downturn and Ethereum's new system, have caused GPU prices to fall below MSRP, and demand has flatlined.

How Your Business Can Secure Supply

While manufacturers and their customers don't need to understand all the ins and outs of crypto, it shouldn't be ignored as a factor in the supply chain as it has repeatedly proven its ability to introduce volatility into the semiconductor market.

When crypto prices rise, the cost of components will likely follow suit. If companies are looking for cost-saving opportunities, they should take advantage of the current market and buy components now while crypto demand and pricing is low. If the crypto craze returns with a vengeance, this market won't stick around for long.

www.fusionww.com

Fusion's global service offering has expanded – to serve you better

electronica

Meet us at Booth C2 259

FUSION WORLDWIDE

Reliable interface in medical devices

Binder's Easy Locking Connector (ELC) is recommended for sensitive homecare applications. Designed to be robust and biocompatible, it meets the requirements for electromechanical connectivity in medical devices.

Features include snap-in locking and an asymmetric hexagon mating area which aids safe operation and long service life. Biocompatible, non-irritant to skin and resistant to disinfectants, it suits the patient environment. The shock-proof and vibration-resistant ELC is available in four, eight and 12-pole versions rated at 2A and 250/150V, respectively.

The ELC is designed for over 5,000 mating cycles. Mating is intuitive and blind mating is possible by non-professionals. Alignment of the plug to socket is predetermined by the asymmetric hexagon mating area. Snap-in hooks ensure simple, effective locking. The latter is easy for the operator to recognize by the snapped-in hooks.

IP54 protects against contact, dust and splash water from all directions. The female panel mount connector protects against splashed water/liquids and accidental electrical contact, even when disconnected.

www.binder-connector.de

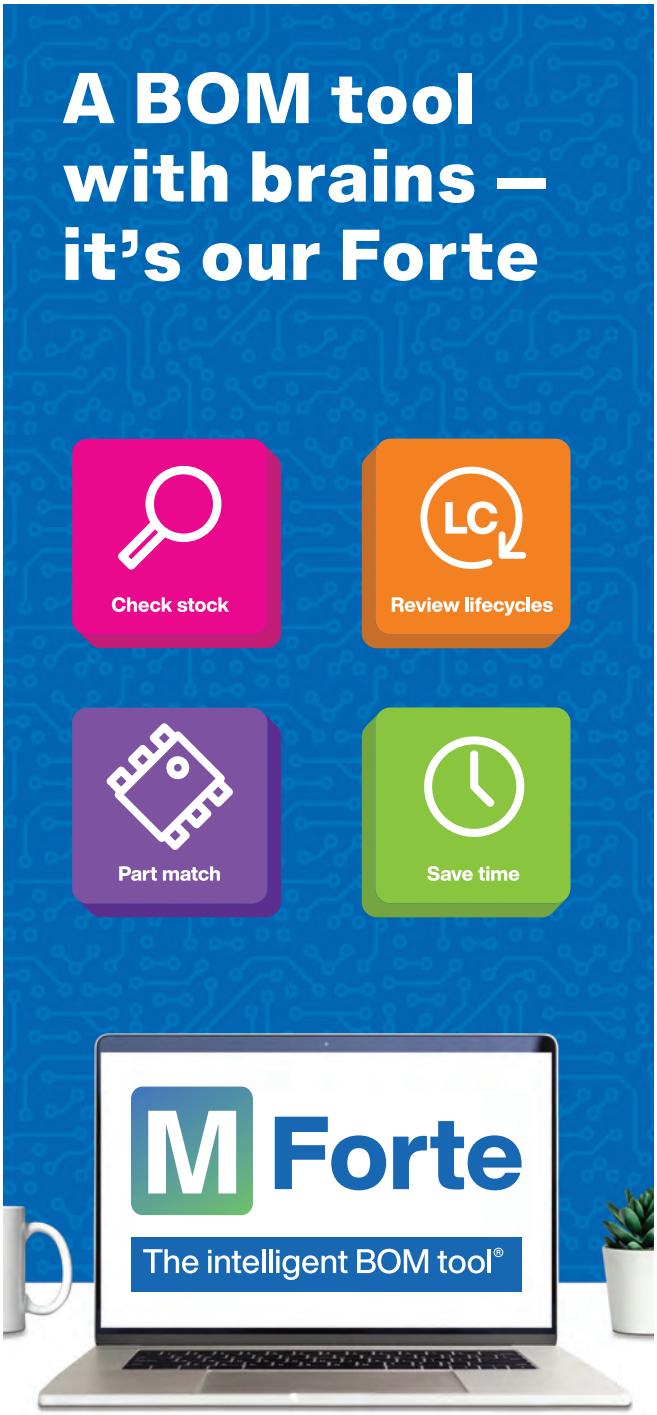
High power connector series extended

Harwin has introduced more variants to its 3kV Kona high power connectors. The new male connectors suit standard cable connection and made-to-order cable assemblies. Applications include new space, EVs, UAVs and robotics. The 60A contacts give a total current carrying capacity of 240A using the four contact version.

The new male connectors provide connections for all Kona contact count options. Engineers can select housings with or without panel mount fixings (compatible with thumbscrew fixings on the female). Reverse-fix thumbscrews (compatible with female reverse-fix panel mount fixings) are also available. All fixings are designed to mate-before-lock. The male solder contact accepts 8AWG wire.

Harwin's head of product management, Ryan Smart, said: "Harwin is committed to the Kona range, with an active development program adding more options regularly. We see the demand for high-power interconnects growing rapidly. These are often in applications with limited space and where we see challenges due to vibration and shock"

www.harwin.com



Automating connector manufacturing

PEI-Genesis' European operations manager, Mark Bailie, walks readers through the process of automated connector assembly at its Southampton facility

A typical cylindrical connector assembly comprises four components: shell, insert, contacts and accessories. The shell forms the strong outer cover and houses the other components. Inside sits the insert, an inner core made from neoprene rubber that holds the contacts.

The insert protects the contacts and provides insulation so electricity can flow from the wire through the contacts without shorting. Contacts are either a pin or socket.

Accessories are application specific and include a backshell to relieve strain, prevent snagging or provide electromagnetic shielding. Other options include clamps and protective caps. Cables sometimes include a coupling nut to hold the mating pair together, plus grommets that bookend the insert and add moisture sealing.

This demonstrates how automatically assembling a connector is not easy. Before automation, operators would have hand glued the insert, pressed it inside the shell, visually checked its orientation and rotated it by hand. Operators would have manually glued, loaded the contacts and applied identification markings to the shell, before using an oven to cure the connector while manually monitoring temperature and duration. Final assembly and packaging were also manual.

Today, PEI's automated system runs on Kanban principles. The process starts with the manufacturing resource planning (MRP) system. Components are stored in zones, with the most frequently ordered components situated closest to the assembly line. The picking team places the latest orders at the start of the assembly process.

The product travels through assembly stages comprising pneumatic machines that bring the shell and insert together, automatically checking alignment and rotating the inserts.

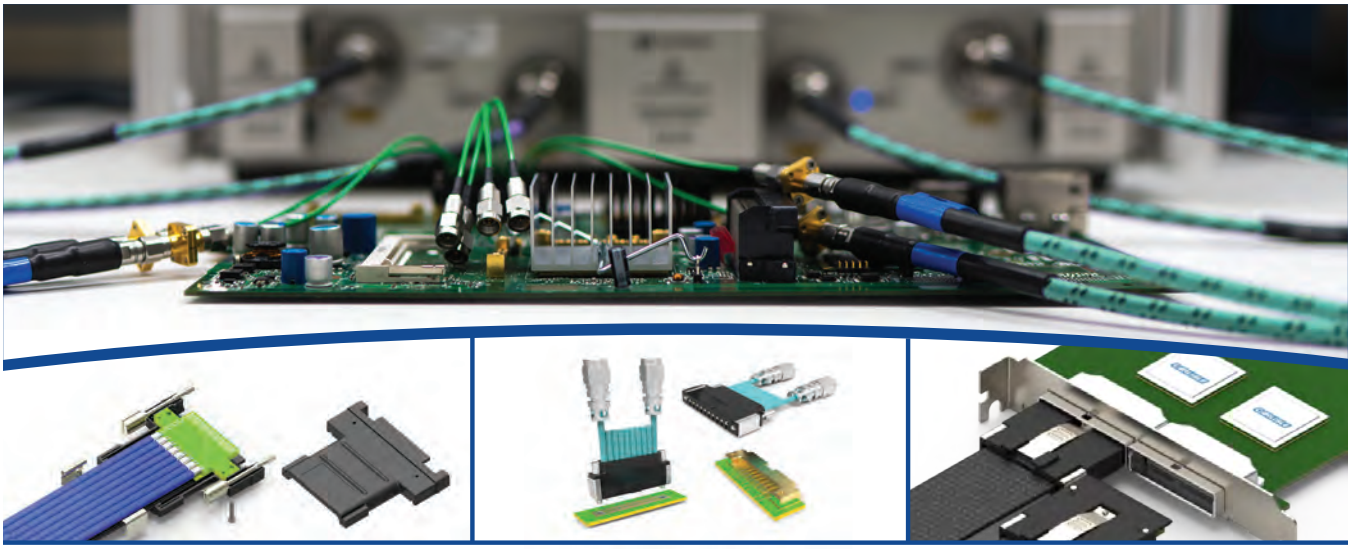
Thousands of contacts are placed in a bowl-fed racking and gluing machine. As they exit onto a rail, the machine picks/glues the contacts and places them into holes in the reel. The next stage sees the contact loader machine install the glued contacts into the insert with the correct height and orientation. Some inserts can take up to 80 contacts. The machine can place different sized contacts into the same insert for connectors with varying contact sizes and arrangements.

Components are marked using inkjet or laser marking dependent on requirements. The curing process happens in a tunnel oven where speed and duration are automatically adjusted as required.

Beyond this, the connector undergoes quality checking, accessories and protective fittings are added and the product is bagged and packaged for dispatch.

www.peigenesis.com

> **PEI's automated system runs on Kanban principles**



CARLISLE
INTERCONNECT TECHNOLOGIES

DESIGN | BUILD | TEST | CERTIFY

Performance with **Purpose**

CarlisleIT.com

Higher density. Lower losses. Higher data rates.
It's precise performance, delivered.

Our CoreHC product family, Card Edge Contact systems, and Gen-Z solutions offer high-density interconnects with lower insertion and return losses at densities as high as 2.5 mm. CarlisleIT leads the way with high-performance interconnect solutions by offering unmatched signal integrity for today's faster and more complex communication systems operating up to 70 GHz.

Adding value: the most important component

In today's challenging market, Hitaltech's MD, Andy Fitzer, emphasises the importance of partnering with a component supplier who's willing to be far more than a supplier

It's hard to be a manufacturer right now. In terms of having the right components, in the right quantities, at the right time, many companies are struggling. It's not easy importing products and even harder ensuring they arrive in time. Manufacturers can no longer place an order with certainty it will arrive six weeks later. Availability is patchy. Lead times are long and uncertain. Then come rising costs. Against this backdrop, component suppliers like Hitaltech are stepping up.

Hitaltech's MD, Andy Fitzer, said: "In my experience, our role is no longer purely about what components and enclosures we supply and the price we supply them for; it's the value we add along the way. If the last two-years have made one thing abundantly clear, it's that service matters more now than it perhaps ever has."

When times are challenging, the best supplier is one that won't simply supply but will step up and work to make things better. They'll bring ideas. They won't duck your calls. They'll know when products will arrive. They will offer a range of services previously not considered, all with the potential to improve customers' products, processes and profitability.

Andy continued: "Adding value begins with the sort of conversations you can only have when you've built deep relationships with customers. That's where we excel. Unlike larger companies, we can sit down with a customer and explore their manufacturing challenges, work out what they need and find solutions.

"That might be a product, such as our latest ultra-flat, flexible cable that's helping EV manufacturers overcome the challenge of packing greater battery management sophistication into smaller packages. The customer may want us to add a bespoke element such as a connector, a customisation we are able to offer that others can't."

It's also common for a customer's challenge to be process rather than product driven. For example, they might want to hold extra stock but not have the warehouse space, business model or budget. Hitaltech's buffer stock lets it carry stock so its customer doesn't have to, enabling just-in-time supply without any client-side storage cost or requirement to carry stock it doesn't immediately need.

Another example is kitting, where Hitaltech supplies components in bagged kits that improve production speed and efficiency because all components are in one place.

Andy concluded: "Our scale gives us an advantage. It enables us to be nimble, flexing with our customers and adapting to their needs in a way larger suppliers typically can't. Once again, though, communication is crucial—it's how we understand the issues our customers face. It's how we understand which way to flex to meet their needs. After all, it's not enough to be capable of adding value; you need to know what value to add to make the biggest difference to your customer."

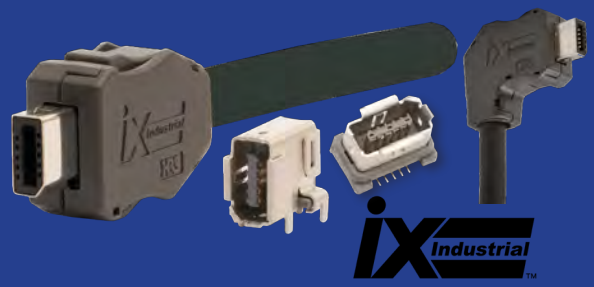
www.hitaltech.com/en

Hitaltech's MD, **Andy Fitzer**

The customer may want us to add a bespoke element such as a connector, a customisation we are able to offer that others can't

HRS® HIROSE ELECTRIC EUROPE B.V.

Creative Links to World Electronics with more than 50,000 connectors...



-Compact: 75% smaller in size than a RJ45
-Robust: 5000 mating cycles
-High-speed: Ethernet 1Gbps/10Gbps
-High EMC resistance
-Complies with IEC 61076-3-124

- FFC/FPC
- PCB-to-PCB
- Wire-to-PCB
- Wire-to-Wire
- Backplane
- Mezzanine
- RF Coaxial
- Interface
- Circular
- Modular
- Optical
- Power
- Automotive

Email: eu.info.3d@hirose-gl.com
www.hirose.com/eu

Hitaltech
The experts in connecting technologies

hitaltech.com

GET TO MARKET FASTER WITH HITALTECH

For your connecting technology & enclosure challenges, trust over 35 years of expertise.

Hitaltech supplies the connectors & enclosures that help create better, more cost-effective products. But we're more than a supplier. We're the people industry trusts to answer your design and production problems.

So when you want to get to market faster, go with Hitaltech.

Talk to Hitaltech about:

- Flexible and rigid board-to-board interconnect systems
- Wire-to-board terminal blocks & connectors
- Enclosures
- STH & SMD terminal blocks & connectors
- Bespoke connectors & enclosures
- Kitting, machining, printing & other Value Added Services

Call us: 01253 899910
Email us: uksales@hitaltech.co.uk

Conex-it

Exclusively sponsored by Digi-Key

Quality and Traceability Build Trust

By **Teri Ivaniszyn**, vice president, operational excellence at **Digi-Key Electronics**

The electronic components supply chain has evolved immensely over the past few years. That's a good thing, but it also comes with challenges that are driving the need for greater accountability and transparency.

Many companies are understandably desperate to find the components they badly need and, as a result, are turning to new – and sometimes untrustworthy – sources to find them. With the supply chain still under strain due to shortages of all kinds, including semiconductors, there has unfortunately been a flood of counterfeit products entering the market. These parts may appear very similar to the authentic version or even be refurbished components that are sold as new. It can sometimes be difficult to tell the difference, with little details such as packaging giving away the inauthenticity. Other times, the differences are undetectable without sophisticated technology. So, how can you make sure you are procuring quality products and not falling victim to these costly and frustrating counterfeits? The key lies with traceability.

The importance of traceability in the electronic components supply chain cannot be overstated. In an era when competition is stiff and gaining consumer confidence is vital, quality and traceability are critical to protecting a brand's reputation. If a product is recalled or a malfunction occurs during testing, being able to trace the issue back to the manufacturer accurately and quickly can mean the difference between reaffirming customer trust or ruining your company's reputation. As the IoT realm continues to grow across industries, the need for greater traceability is increasingly important.

Sourcing traceable products can also save companies a considerable amount of money. If any faults arise with a product, the OEM or subcontractor can send a recall notice out quickly – reducing legal costs and mitigating profit loss. Defects with genuine products can also be quarantined much easier than in counterfeit parts, curbing the amount of manpower and time spent on correcting an issue.

While discussions and demand for traceability continue to grow, Digi-Key's commitment to quality and traceability leads the industry. Digi-Key only buys direct from its more than 2,300 quality, name-brand manufacturers to ensure each component is new, authentic and fully warrantable under the direct supplier and that accurate, up-to-date technical information is readily available. For each of Digi-Key's more than 10.8 million components, the company holds documentation valid for 10 years that proves its traceability and authenticity.

Additionally, all suppliers undergo a comprehensive qualification process prior to Digi-Key partnering with them. The company regularly assesses supplier performance, and supplier controls are continuously monitored and inspected by quality and certification teams, as well as by a third-party auditor, to ensure they continue to meet Digi-Key's high-quality standards.

Digi-Key is proud to have a growing number of SKUs and suppliers, but the goal remains the same: to support engineers and buyers. One of the most important ways Digi-Key can do that is by ensuring they have access to the highest quality components on the market.

Learn more at *Digikey.co.uk/quality*

Overcoming supply chain issues

FermionX' procurement and manufacturing experience highlights the need for new levels of forward planning which, in some cases, now extends to 24-months

One of the biggest challenges facing procurement teams in electronic manufacturing is stock reliability and knowing when it will arrive. With lead times often fabricated or at best, hugely ambitious, buyers and operations teams are under pressure. There is also the serious added risk of counterfeit parts being sourced and used in production.

The impact on production times means the luxury of forward-planning has now become a necessity. Especially when teams are seeing parts ordered in 2021 arriving on their doorstep now. Internal planning is vital to ensure customers' products are manufactured on time and to budget.

As a result, FermionX has found that working closely with customers and their designers has never been more important. By always keeping customers updated on parts, lead times and delivery schedules the company can meet expectations better or seek suitable alternatives when parts are scarce. Recently FermionX found itself working up to 12 to 24-months in advance with some customers and this is fast becoming the norm.

Component shortages also means counterfeit parts are finding their way into the market. FermionX only works with approved suppliers known to be reliable and has avoided this impacting production. The company's confidence in its ability to source quality, trusted components means customers remain reassured that its service will meet expectations. Speak to suppliers about their quality assurance and testing measures, especially x-raying parts from new, unknown sources to help combat quality issues further down the line.

www.fermionx.com/ecs

> **The impact on production times means the luxury of forward-planning has now become a necessity**

CML INNOVATIVE TECHNOLOGIES
WHERE INNOVATION COMES TO LIGHT
formerly Chicago Miniature Lamp and SLI Miniature Lighting

Fast supply chain & global distribution
For details of your local distributor or to discuss your requirements further contact:
uksales@cml-it.com
www.cml-it.com

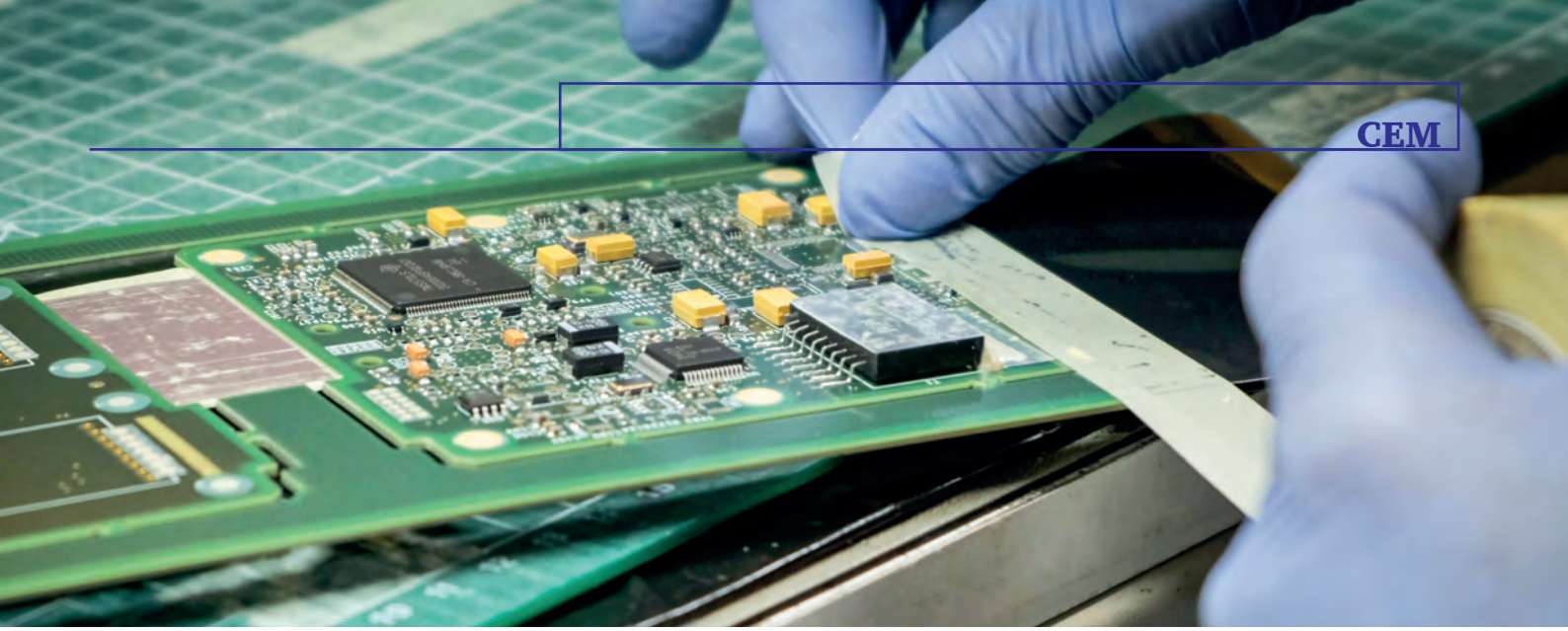
Focus on planning

Phoenix Systems UK explains how long term forward planning and committing to stock are two ways the company is tackling today's unpredictable market

Two key trends currently having a big effect on the electronics manufacturing industry are material de-commits and resource. OEMs are de-committing orders at the last minute, making it difficult to accurately plan production lines. Recruitment is also incredibly challenging at this time. The number of people applying for jobs has reduced significantly, and those who are interviewed are often countered by their current employers to stay.

These trends are impacting purchasing. The situation is creating additional work, as the purchasing teams are constantly looking for alternative parts and suppliers. They are also escalating delivery times with current suppliers and de-expediting material which then cannot be built to protect cash flow.

Responding to these trends, manufacturers need to work with



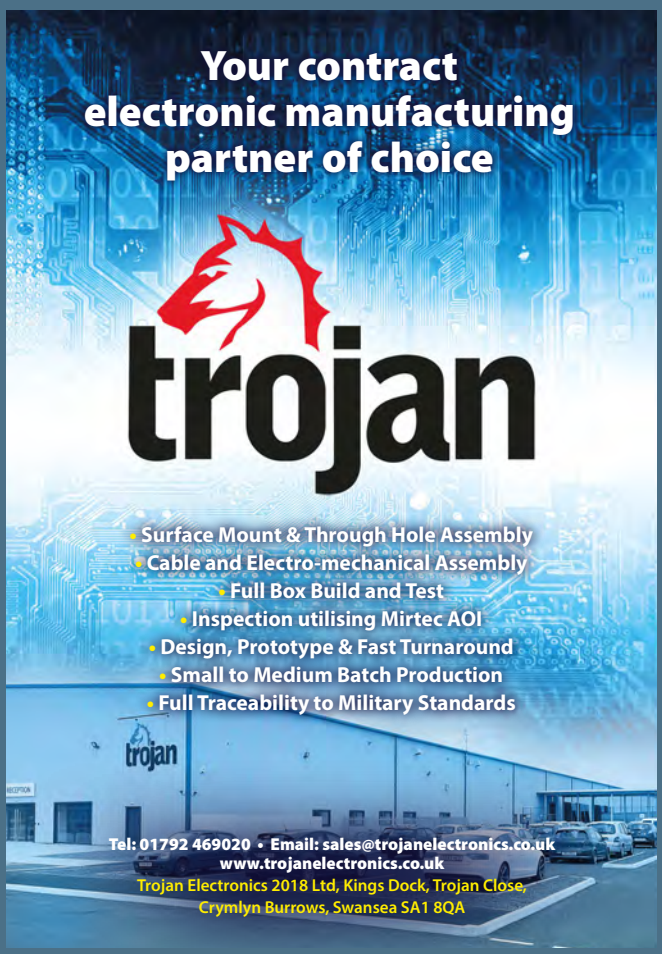
suppliers to hold stock and encourage sales teams to get forecasts and commitments from customers. Another way to increase the chances of supply continuity is to introduce a third party to secure long-term buffer stock and look to introduce greater inhouse buffer stocks to protect key components from delays. If stock is readily available, it often needs to be bought in straight away rather than scheduled. To address these trends head on, Phoenix is pushing customers to commit to forecasts and orders covering all of 2023 as a minimum. The days of fast turnaround volume builds are gone, for now, with no sign of returning to normal in the near future. Planning ahead and committing to stock is the best course of action.

www.phoenixsystemsuk.com

> **The current situation is creating a lot of additional work as purchasing are constantly having to look for alternatives**

Heightened need to know your customer

SMS Electronics' director of sales and marketing, Steven Blyth, discusses how the challenges of the past three-years will shape the industry for the next three decades and beyond



Agility and flexibility have been common buzzwords used by electronics manufacturing service providers over the past three-decades, to communicate their ability to scale up and down as production schedules change. However, such words have taken on a whole different meaning over the past three-years as EMS companies strive to meet changing and demanding market conditions.

The challenge faced by many EMS companies has been their size. Large global providers have faced challenges synchronising and streamlining their internal systems, whilst smaller regional providers faced resourcing issues and constraints. The sweet spot is large enough to achieve economies of scale, yet small enough to nimbly react or proactively get in front of issues.

Brexit, Covid-19, component shortages, logistical issues and resource absences meant SMS' culture of constant collaboration came into effect ten-fold. The company recognised that to effectively communicate externally with customers, it needed to sing from the same hymn sheet internally. Internal meetings were weekly, but shifted to three times per day, every day. Like clockwork, the heads of operations, supply chain, distribution, HR, finance, sales and marketing would meet on Zoom or within the facility to align component parts, products, production and people. This practice—since reduced to three times per week—remains with the company as the communication benefits to customers became crystal clear.

Internal benefits also shone through as everyone got to know one another better. Even though most were complying with government guidelines to work remotely, the team actually worked more closely. Crises brought everyone together as the common goal was customer care. We all became strategically aware of cross functional working practices, and now understand one another's departmental functions better, which will benefit customers long-term.

An open book internal policy was the starting block, so nothing came as a surprise that would have a knock-on

Continue on page 20 >

NEMCO

Trusted partners for *Contract Electronics Manufacturing*

Complete PCB solutions, from prototyping and assembly to volume production and supply chain management.

nemco.co.uk
+44 (0)1438 346 600

AS/EN 9100 Series Aviation, Space and Defence · ISO 14001 Environmental Management · FM 34116 · EMS 610061 · bsi · UKAS Management Systems 0003 · FM 34116 EMS 610061 · Cyber Essentials Plus · MAKE uk The Manufacturers' Organisation · man Manufacturing Excellence · A member of ADS · SHARING IN GROWTH

corintech

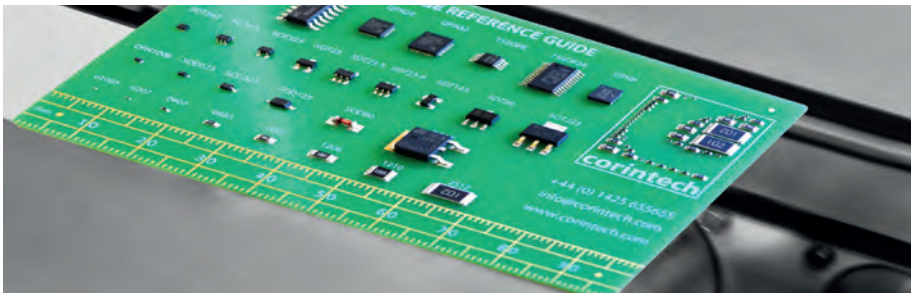
ELECTRONICS | DESIGN & MANUFACTURE

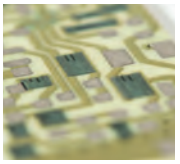
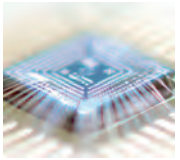
www.corintech.com info@corintech.com +44 (0)1425 655655

Experts in Electronics

Improved Quality • Cost Reduction • Customer-Focused Support

Three reasons to choose and stay with Corintech



ELECTRONICS MANUFACTURE

- Component sourcing
- PCB assembly
- Hybrid microcircuits
- Full product assembly
- Rapid UK and scalable offshore production
- Flexible stockholding and supply
- AS9100, ISO 9001, IPC, J-STD

ELECTRONICS DESIGN

- Advanced electronics engineering
- PCB layout
- 3D CAD
- Design for manufacture
- Wireless and IoT integration
- Software and firmware development
- Cloud service and app development

effect across the entire supply chain. As this practice became second nature, the skills were transferred onto knowing the customer.

SMS started to bang the drum on extended lead-times as early as November 2019, which is when franchised distributors were receiving information from original manufacturers that component shortages were forecast, with the term allocation back on the table.

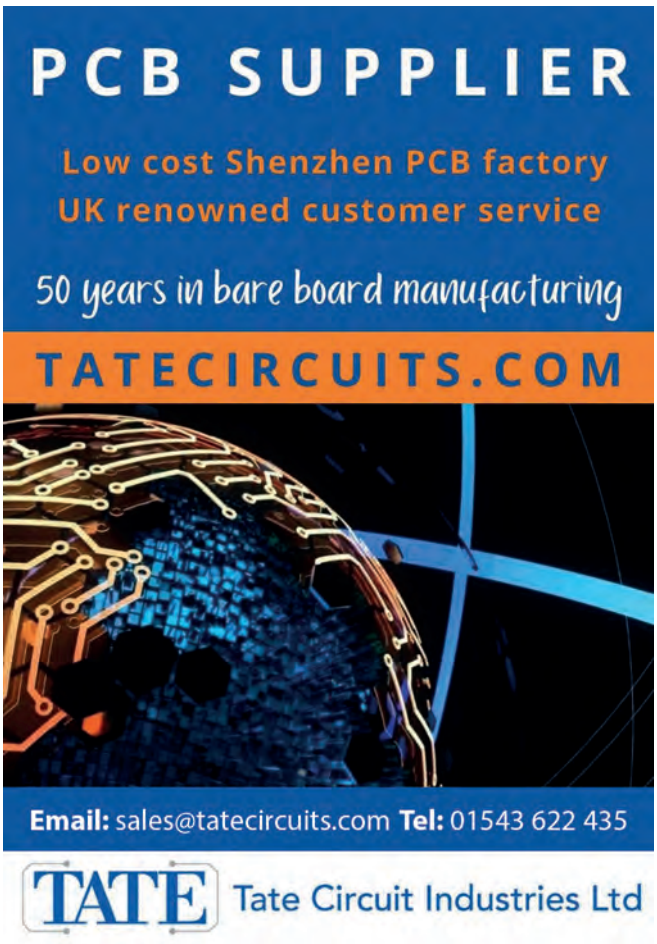
This is when true 'know your customer' kicked-in. Discussions took place with all customers to understand their future production plans, whether for current product revisions or potential next generation developments, to secure a long-range forecast. Armed with this data, SMS worked with its strategic supply chain partners to understand their schedule for component parts. Harmonising supply and demand between all parties in the supply chain allowed placement of long term production commitments. Customers benefitted as they avoided shortages and, as demand quickly outstripped supply, the inevitable increased costs.

This process helped everyone and was adopted as the company started to see 12-months plus order commitments, now extended to 24-months plus with the majority of customers.

SMS has also taken a belt and braces approach with customers to protect their product production by asking them to consider: alternative components; redesigning their product to accommodate daughter boards; or to harvest component parts from previous generations of technology. All of these solutions also address one of the main trends in electronics manufacturing, addressing e-waste by taking a more sustainable approach.

www.smartmadesimple.com

> **As this practice became second nature, the skills were transferred onto knowing the customer**



Vision
ENGINEERING

www.visioneng.com

See what you've been missing!

Digital microscopes by **Vision Engineering** are built with quality to last a lifetime.

Experience our range of digital inspection systems.

- VE Cam

Simple to use, compact digital inspection microscope

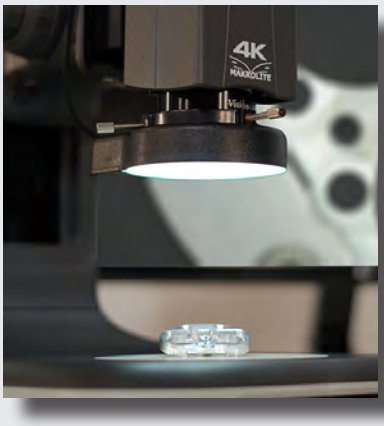
- Makrolite 4K

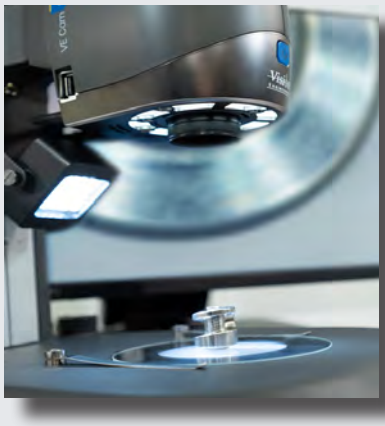
Digital inspection microscope with 4K image quality

- DeepFocus 1

Extended Depth of Field digital inspection system

www.visioneng.com





Time to prioritise revision control

Nano Electronic Services emphasises using a robust version control process to ensure purchasers know exactly what to buy and manufacturers know exactly what to make

One of the biggest bugbears for electronics manufacturing companies is revision control. Too often manufacturers receive a new bill-of-materials, named identically to the previous one, but with changes. It leads to confusion, extra effort and potential production errors.

By the time prototypes have been produced, NPI concluded and products are in production, everything should be sorted. However, what about the early stages? It's a good habit to get into.

Revision control is easy to do but is often forgotten or lost in the pressure to complete a design. However, a few minutes extra work, can save manufacturing staff hours of head scratching.

Here is an example of a simple revision control:

- PCB Job ABC Rev 0.1: power board
- Rev 0.2: added R63, changed C1 to 100nF
- Rev 0.3: J1 removed
- Rev 1.0: Released for prototype

This lets manufacturers easily identify changes, rather than comparing two BoMs with the potential for error. Changes can be seen at a glance. Plus, when building boards, the latest revision is easily identified as a sanity check. The same for PCB data. The revision can be added to the data file, silk screen or a copper layer. Some customers use different solder mask colours to denote major design revisions (red for proto, blue for NPI, green for production).

Just this simple extra bit of housekeeping, can save manufacturing a lot of headaches.

www.nanoelectronicservices.com

Get a quote

M-Tek ASSEMBLY LTD

M-Tek has reinvented the PCB Assembly Supply chain with instant and real-time pricing for component pricing and availability.

With all the information you need at your fingertips, and access to your very own pricing portal

- Assembly Labour Pricing
- **Component Pricing and Availability**
- PCB Costing

www.mtek.co.uk / www.pcbassemblyservices.co.uk

Investing in new technology

35 YEARS

35 years' experience creating bespoke CEM solutions across all sectors.

We pride ourself on delivering:

- First-class customer service
- Extensive supply chain capabilities
- Flexible and collaborative approach

We are thrilled to offer services using the **first ever Versaflow 455 Selective soldering system in the UK.** This innovative system offers substantial added value for the production process by potentially doubling the soldering throughput; resulting in the highest flexibility and shortest cycle time.

ESPRIT ELECTRONICS

Contact us to find out how we can meet your CEM needs today!

+44 2380 455 411
sales@espritelectronics.com
espritelectronics.com

ELECTRONIC TECHNICIANS LIMITED

41 - 43 Cobham Road
Ferndown Industrial Estate
Wimborne
Dorset
BH21 7QZ
United Kingdom

Telephone: +44 (0)1202 897722
Email: sales@etluk.co.uk

www.etluk.co.uk

CERTIFIED ISO 14001

CERTIFIED AS 9100

ETL

LCL's purchasing manager, **Richard Langham**

Keeping the lines running

LCL's recently appointed purchasing manager, Richard Langham, explains how the purchasing department keeps the manufacturing lines running during these challenging times

Richard Langham started his electronics industry career in April 2022 as a component buyer for LCL Electronics Assembly. It quickly became clear Richard had joined the industry during a period of unprecedented supply issues with normal lead-times around 52-weeks and exceptional lead-times exceeding two-years.

Richard said: "At LCL the majority of our customers don't have the luxury of placing two year schedules as their business is dynamic which often means delivering product within eight to twelve-weeks. This means I have to work fast and smart to secure components to ensure I help keep production running.

"The way we achieve this is by following three main steps. Firstly, every new order is re-sourced and components double checked for availability and current pricing before we accept the order. Secondly, we review all hard-to-find components with our engineering team to identify drop-in alternatives or alternatives that only require minor redesigns to achieve required deliveries. All of which we do in partnership with our customers. Thirdly, we constantly manage our order book. It is too easy to sit back and assume the orders I place will turn up on time and everything will be fine."

Continue on page 26 >

sellectronics

Helping you assemble the future

We offer all your electronic requirements
from quick turnaround prototyping
through to complete box build services.

Sellectronics Ltd
Church View Business Park
Falmouth, Cornwall TR11 4FZ
T: +44(0)1326 450393

info@sellectronics.co.uk
www.sellectronics.co.uk

26 years of manufacturing excellence

tioga

Derby based Tioga Limited, founded in 1996, has developed into one of the UK's leading Contract Electronic Manufacturers.

Offering a broad spectrum of electronic assembly, the heart of Tioga's manufacturing facility is based in Derby right in the centre of the UK in a beautiful listed railway building. The site has been custom converted and fully refurbished into a modern, extensive and sophisticated plant housing state of the art equipment.

Our core competencies far exceed just manufacturing; this encompasses design, engineering support, global procurement and supply chain, manufacturing, test, configuration, warehousing and distribution. In short, we are able to take on board the management of customers' products in their entirety.

Angela Williams / Sales Director

More investment for future business...

Tioga are working towards approval of the internationally recognised **AS9100 Aerospace Accreditation**. This will compliment Tioga's existing approvals **ISO9001**, **ISO13485**, **ISO14001** and **ISO27001** to demonstrate our ongoing commitment to Quality and our strategy to exceed customer expectations for delivery and service in multi-industries. The Aviation Industry is highly regulated with demands and controls that ensure the safety and reliability of equipment and materials. We will finalise the process mid-2023.

ten reasons to team up with tioga

- State Of The Art Electronic Assembly
- 3 Fully Automated Mycronic SMD Production Lines
- BGA, µBGA and Complex Technologies
- EKRA X5 Screen Printers / Mycronic MY700JX Jet Printer
- Large Board Capability 560mm x 600mm
- Nikon XTV 160 X-ray with Laminography
- ISO 9001 / ISO 13485 / ISO 14001 ISO 27001
- Full Turn Key Solution / Boxbuild
- Wide Ranging Expertise
- Design Partnership

Visit our Website to view our New Corporate Video

www.tioga.co.uk

ISO 13485 Medical Device Quality Management

ISO 9001 Quality Management Systems CERTIFIED | ISO 14001 Environmental Management CERTIFIED | ISO/IEC 27001 Information Security Management CERTIFIED

IPC

t +44 (0) 1332 360884
email sales@tioga.co.uk

tioga
electronic assembly
PART OF SIMPATICA GROUP LIMITED

However, unforeseen problems can occur. To help manage this, LCL's management team holds a meeting each morning to discuss the current status of all orders. These meetings cover hard-to-find components and shortages on upcoming jobs and the team works to find solutions.

Richard continued: "I was introduced to a number of search engines which take a lot of the legwork out of sourcing and find netComponents by far the best. It doesn't have all the answers but helps to identify potential stock or which markets and distribution channels may have inventory.

"The majority of my spend is currently with the catalogue companies, without who my job would have almost been impossible. Obviously they don't have stock of everything, but between them I can generally get hold of around 80 per cent of each customer's BOMs and whilst pricing can move almost daily in this market, I have found them to be very consistent.

"Larger franchise distributors have little free stock and what product is available on more sensible lead times has large MOQs and NCNR agreements attached to them. However, I have found the smaller independent distributors have been much more flexible and proactive in offering alternative solutions and overall, a lot more customer focused. I have also found it to be invaluable to have a strong relationship with a broker that can provide both quality product and a reliable service."

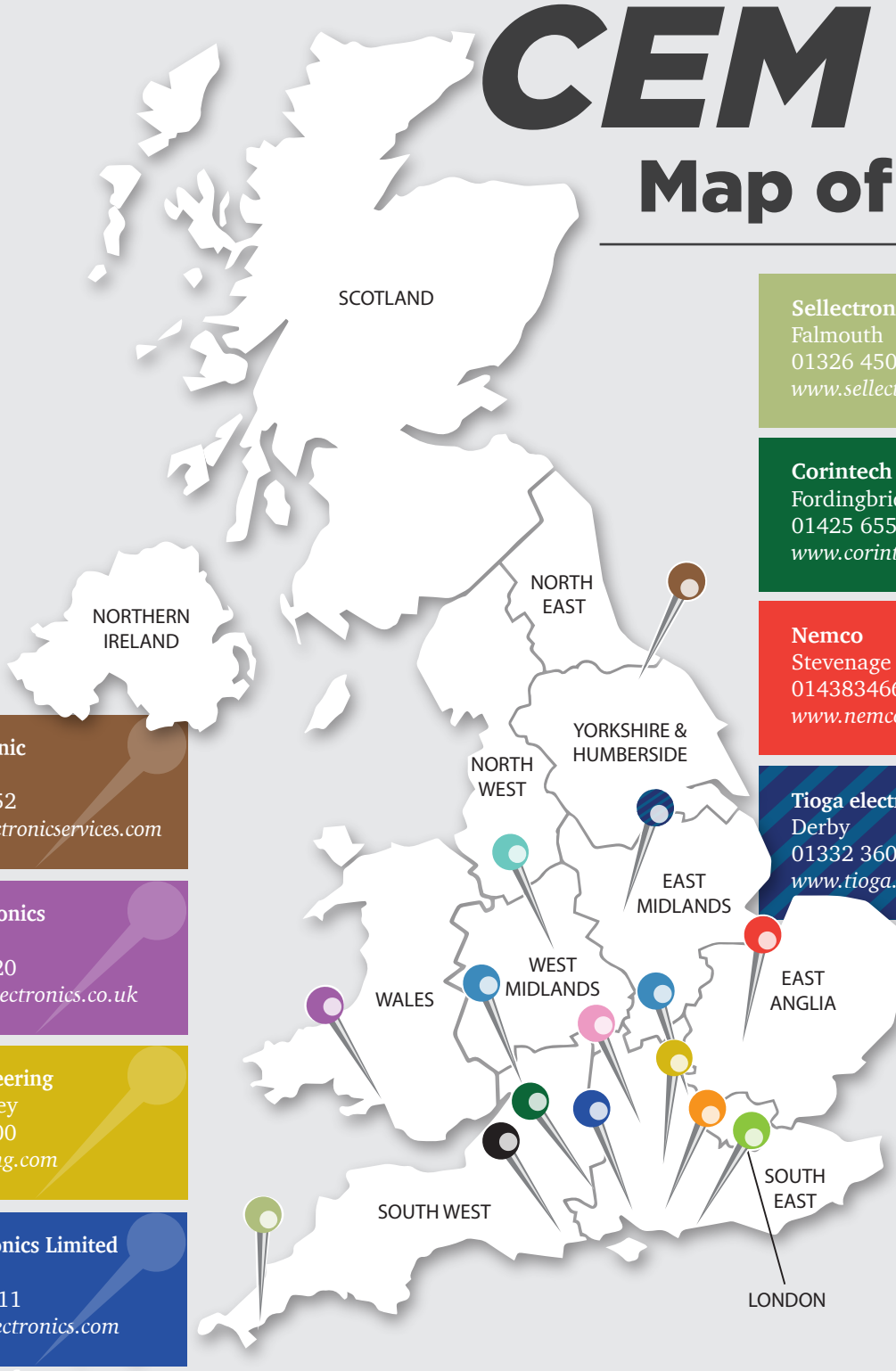
"LCL's management team holds a meeting each morning to discuss the current status of all orders

During the last six months LCL has designed several new products. A key consideration is part availability, which has made purchasing much easier. This lets Richard go to manufacturers and distributors with advanced orders to secure stock and ensure the new products are delivered on time.

Richard concluded: "Do not be scared to ask questions, knowledge is invaluable to help understand the vast spectrum of component purchasing."

lclelectronics.co.uk

CEM
Map of UK



Sellectronics
Falmouth
01326 450393
www.sellectronics.co.uk

Corintech Ltd.
Fordingbridge
01425 655655
www.corintech.com

Nemco
Stevenage
01438346600
www.nemco.co.uk

Tioga electronic assembly
Derby
01332 360884
www.tioga.co.uk

Nano Electronic
Darlington
01388 247152
www.nanoelectronicservices.com

Trojan Electronics
Swansea
01792 469020
www.trojanelectronics.co.uk

Vision Engineering
Woking Surrey
01483 248300
www.visioneng.com

Esprit Electronics Limited
Hamble
02380 455 411
www.espritelectronics.com

M-TEK
Reading
01189 455377
www.mtek.co.uk

NOTE Windsor
01753 746700
NOTE Stonehouse
01453 797580
www.note-uk.co.uk

FermionX Ltd.
Worthing
01903 524600
www.fermionx.com

Phoenix Systems
Fareham
08456 586111
www.phoenixsystemsuk.com

Electronic Technicians Ltd.
Wimborne
01202897722
www.etluk.co.uk

Tate Circuit Industries
Lichfield
01543 622435
www.tatecircuits.com

Driving sustainable progress

Electronica 2022 invites purchasing professionals to join discussions covering topics ranging from creating an all electric society to fair trade

Electronica 2022 will present the electronics industry as a trailblazer for societal future topics. The program of conferences, forums and special events will focus on knowledge transfer and personal exchange with experts under the motto: driving sustainable progress.

This year things start with the *electronica Automotive Conference* on 14 November. This will deal with the transition of cars toward becoming intelligent IoT devices over the course of around 18 presentations. Key issues at the event include new EE architectures, intelligent interiors, challenges for supply chains, CO_2 neutrality and efficient drive trains.

On 16 November, the *electronica Embedded Platforms Conference* will discuss the challenges and solutions for future embedded systems. In some 35 presentations (three parallel tracks) experts will report on key topics such as power electronics and supply, AI, sensors, communication and software.

Lastly, *Wireless Congress 2022: Systems & Applications*, organised by WEKA, will be the meeting point for the international wireless community from 16 to 17 November. The event will concentrate on the latest developments and the practical application of wireless technology.

How can the electronics industry contribute to protecting the climate and creating an all-electric society? Four CEOs from notable companies will discuss this at the *CEO Roundtable* on 14 November. Hear the views of STMicroelectronics' Jean-Marc Chery, Infineon Technologies' Jochen Hanebeck, NXP Semiconductors' Kurt Sievers and Wolfspeed's Gregg Lowe.

New to *electronica* is the *World Ethical Electronics Forum* on 15 November, in cooperation with Elektor and Elektronikpraxis. This will deal with ethical questions connected with social responsibility, sustainability, ecology and fair trade. Independent ethics experts will have their say, as will people from research, NGOs, associations and businesses.

Particular focus of the *electronica* forums will be the 'user side', shedding light on market and technology topics. In practical presentations, the latest technologies, products and solutions will be showcased including: automotive, electrical connectors, measurement technology, IIoT, cyber security, PCB/components, power electronics, embedded systems and printed electronics. The program will be rounded out by panel discussions, roundtables and specialist exchange.

Electronica 2022 takes place from 15 to 18 November.

www.electronica.de/en

The Semiconductor Lifecycle Solution™

Offering the world's largest continuous source of semiconductors with over 15 billion finished devices in stock, combined with extensive manufacturing capabilities from the world's largest die bank at over 12 billion. The Rochester Electronics' Semiconductor Lifecycle Solution™ keeps business moving!

Rochester Electronics®

electronica
World's leading trade fair and conference for electronics
November 15–18, 2022 | Messe München

Meet with our team to learn more! Visit us at **Hall C4, Booth 260.**

Unit 2 Fenice Court, Eaton Socon, St Neots • Cambridgeshire PE19 8EW • United Kingdom
+44.1480.408400 / emeasales@rocelec.com / www.rocelec.com

Productivity • By John Denslinger

Workplace upper hand

John Denslinger is a former executive VP Murata, president SyChip Wireless, and president/CEO ECIA, the industry's trade association. His career spans 40 years in electronics

In the face of a changing economy, John Denslinger encourages employers to value the people they have; employees to maximise their productive; and new hires to be flexible

Office productivity in the American workplace is second to none. For years, tech companies invested heavily in computational power, interactive systems, decision tools and global communication links allowing worker productivity to soar. That trend continues today as companies accelerate investments in cloud services and massive data storage to capture billions of vital data points from digital mining, IoT inputs and AI applications. One might say it's the perfect blend of man and machine with data-driven decision making, enhanced response to market and customer changes, integrated feedback loops, unlimited diagnostic tools and easy accessibility for the mobile user.

Tethered to the office was understandably the daily norm for generations. All that changed when Covid shutdowns shuttered offices. Employers were forced to rely on home-based workers for survival. In a way, the shutdown gifted an unexpected entrepreneurial opportunity to remote workers. In that time, workers (particularly younger generations) developed a different view of work. Empowered with more control over daily schedules employees settled into a comfortable blending of home and family care with work. It's no wonder career decisions value this benefit so highly.

In the quest for talent, who has the upper hand. Is it the employer or employee and why does it matter? Competing for talent remains a challenge. If published figures are right, hiring remains hot. Over the past 12-months, the professional and business services sector (most pertinent to our electronics industry) added 1.1 million jobs according to US BLS records and there remains more than 10 million job openings as overall demand continues to out-pace supply. It would seem employees have the upper hand and potential leverage over salaries, benefits and working location.

A survey of 1,500 managers by Robert Half, State of US Hiring, revealed 31 per cent of employers will allow new hires to live anywhere. So, on the issue of workplace, where do employers and employees stand? Employers talk hybrid but seem to favor all workers returning to the office. Loyal employees seem to prefer a mix of office time and some remote. Potential candidates seek work balance, quality of life and favorable locations before considering new jobs. Dave Fisch, CEO of Ladders Inc, a professional search firm, remarked that 68 per cent of job seekers search for remote only opportunities. Growing companies need to acquire talent, but companies also need to build trust, satisfaction and loyalty among existing employees keeping them competitive to market conditions. Again, the upper hand seems to line up with employees. Hybrid and remote working models will prevail.

However, change is in the wind. Wages are increasing but trailing inflation. Two consecutive quarters of negative GDP, confirms we are in a recession. The Federal Reserve's inflation reduction rate hikes are effectively dampening demand. Some tech companies are signaling cutbacks and layoffs. Others are simply resorting to 'quiet firing' selectively moving individuals out. The job market is about to shift.

The Fed may actually hold the biggest hand in the workplace debate. It judges its counter-inflationary progress on several metrics with unemployment being a key. The current rate sits at a low 3.7 per cent. As predicted, the Fed prefers to talk 'soft landing' and not a target unemployment rate that sufficiently thwarts inflation, but some studies suggest it may take a 6 per cent rate to break the current inflation cycle. High unemployment doesn't bode well for anyone.

Employers: value the people you have. It's costly to replace talent lost. Employees: be productive. New hires: be flexible.

TrustedParts.com

Genuine electronic components from only authorized sources.

Enter a component part number

54B+
PARTS IN STOCK

25M+
UNIQUE PART NUMBERS

4K+
LEADING MANUFACTURERS

2.3M
USERS PER YEAR

120M
SEARCHES PER YEAR

ALWAYS REAL-TIME PRICING AND AVAILABILITY

Search authorized distributors at TrustedParts.com

Ready to reduce assembly time?

CamdenBoss introduces buyers to an enclosure which offers innovative features designed to help manufacturers reduce assembly time and improve production efficiency

A manufacturer's ability to reduce production times is an indicator of its efficiency, is directly linked to the bottom line and provides the company with a competitive edge. To help manufacturers shorten assembly times, CamdenBoss' has launched its Easy Assembly Electronics Enclosure.

The enclosure comprises a unique dual action lid, featuring a push-button clip mechanism that attaches the lid to the base. Thus, the lid can be attached quickly and easily without the need to screw it down. This feature allows quicker assembly and subsequent cost savings. If this feature isn't required, the lid can be reversed where a brass insert lines up with the buttonhole, allowing for a countersunk screw.

The lid functionality provides effortless assembly capability which, on the production line, saves time. With a shorter assembly time more units can be put together faster, boosting efficiency, shortening lead-times and providing cost savings and increased sales.

The Easy Assembly Electronics Enclosure has another trick up its sleeve to boost production line output, which can be found within the enclosure itself. Located at the top of the base section is a set of supports on either side. These supports have been designed to require no screws when mounting a PCB. As a further security measure, the lid incorporates a set of moulded plastic springs that hold the PCB in place from the top so the board experiences no movement once the enclosure has been assembled.

These smart features provide benefits to both OEM manufacturers for assembly speed and end users should the internal space need to be accessed at any time. So, if manufacturers are looking for an enclosure that combines quality, high design standards and the added benefit of a fool proof quick assembly method, the Easy Assembly Electronics Enclosure offers a solution.

www.camdenboss.com

HAMMOND

1557 Polycarbonate IP68 and ABS IP66 enclosures

new!

Learn more: hammfg.com/1557

Contact us to request a free evaluation sample.
uksales@hammfg.com • 01256 812812

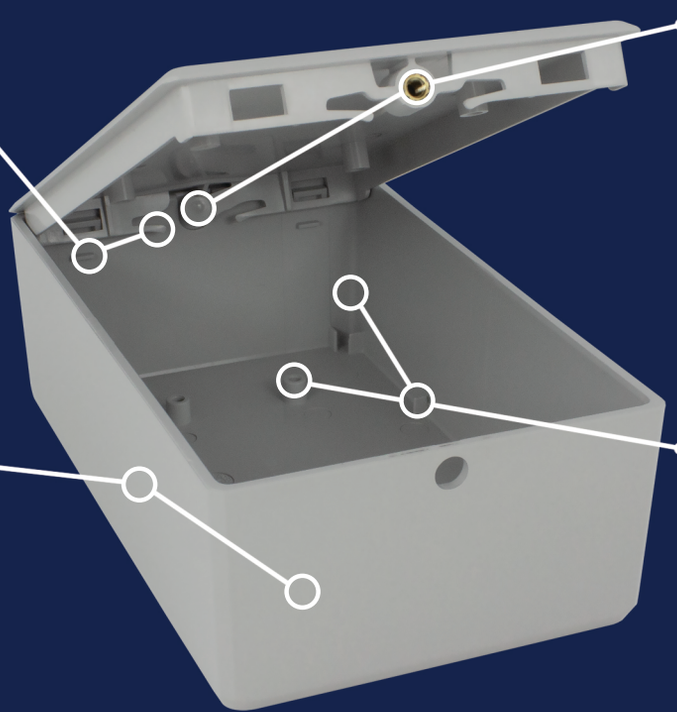
Introducing the time-saving Universal Enclosure

Easy Assembly 1 — 2 — Click!

DESIGNED TO REDUCE ASSEMBLY TIME!

Screwless assembly using our spring feature to hold your PCB in place!

Super-fast assembly and maintenence with our Dual-Action lid!



Easy to customise on all sides with cutouts, printing, and engraving!

Large and unobstructed PCB footprint allows for edge-to-edge components!

1 Select Yours!

You have four sizes and three colours to choose from: black, grey, and white. We also include a customisation service!

2 Mount your PCB!

Use the mounting points on the base or lid, or use the spring feature on the lid to hold your PCB in place without screws!

Click and Go!

Our Dual-Action lid gives you the choice between held in place with a push-button clip or with a single screw!

CONTACT US FOR A FREE SAMPLE!

CAMDENBOSS®

CONNECT. ENCLOSE. INNOVATE.

Manufactured in the UK

www.camdenboss.com +44 (0)1638 716101 sales@camdenboss.com

Bent metal enclosures in demand

Buyers tasked with sourcing enclosures for non-standardised PCBs can explore Lincoln Binns' bent metal enclosures design and manufacturing service

Disconnects between electronic and mechanical design mean PCBs are not always designed with the enclosure in mind. Boards can be odd sized, odd shaped and feature connectors on more than two sides.

Lincoln Binns' solution is a Zintec steel case which is laser cut, folded, welded (if needed) and powder coated. Coating options include matt, gloss, semi-gloss and fine textured finishes. Zintec steel sheet is metal plate electrolytically coated with a thin layer of zinc. It is strong and machinable. Various thicknesses are available depending on the enclosure's overall size.

When compared with an extrusion, sheet metal allows for custom sizes and complex shapes without the expense of an extrusion die and bulk ordering material. Sheet metal also allows the addition of holes, cut-outs and vent patterns on six sides in one operation.

Lincoln Binns uses Zintec for its strength and affordability compared with aluminium. However, all bent metal enclosures can be produced from aluminium and anodised if needed. Design is done in-house by Lincoln Binns' design team using SolidWorks either from a 3D PCB model or the board itself. Design features can include self-clinching stand-offs to mount the board, light pipe cut-outs and digitally printed colour artwork.

Lincoln Binns also uses the laser cutting and bending process to manufacture its own range of 19in enclosures.

www.lincolnbinns.com

Lincoln Binns Product Range

Lincoln Binns manufacture and modify a large range of enclosures

Lincoln Binns. ELECTRONIC ENCLOSURE SPECIALISTS

E-Case Range

The E-Case range of closed box section extrusion
Available in the online shop in 4 sizes
To suit 55mm, 100mm or 160mm wide PCBs
Supplied in pre-anodised Silver or Black and in a range of lengths

Combi-Case Range

The Combi-Case 100 range of 2-part U-section extrusion
2 height options - make 3 height variants
To suit 100mm wide PCBs
Supplied in pre-anodised Silver or Black and in a range of lengths

U-Case Range

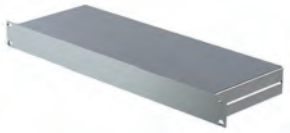
U-Case 6-piece electronics case kit
Consists of 2 side extrusions 1U in height
Enclosures can be manufactured to different widths & lengths
Available in a range of fixed sizes in silver

UnioBox Range

UnioBox range of 6-piece enclosure kits
Consists of 2 side extrusions in 66mm, 2U and 3U heights
Enclosures to be manufactured to different widths and lengths
Available in a range of fixed sizes in silver

19" Rack Panels & Enclosures

A full range of 19" rack enclosures, extruded and blanking panels
19" Rack enclosures - 100 / 150 & 250mm deep
19" Extruded panels - Re-enforced ribs on the rear
19" Blanking panels - 3mm brushed aluminium



Lincoln Binns is an authorised distributor of the full Hammond Manufacturing range of plastic & die-cast enclosures and the Alubos range form Bopla.

We offer a full customisation service on all of the above enclosures

Contact us:
+44 (0)1403 865486 info@lincolnbinns.com www.lincolnbinns.com

Specifying high performance plastic enclosures

OKW Enclosures' marketing director, Robert Cox, discusses how to keep electronics safe and precise in measurement, control and automation applications

It's a tough world out there for test, measurement and control electronics. Bad weather is never merciful. Indoor industrial environments can be just as challenging. Hardly the place for sensitive electronic instrumentation. It's a wonder that devices survive and remain accurate.

Specifying a robust enclosure is vital. However, sheer strength is not enough. Elite, high-value equipment must also look great. This can create a challenge for OEMs who must choose enclosures that are tough and smart—for what may be only a small batch of niche instruments. Compromise is not an option.

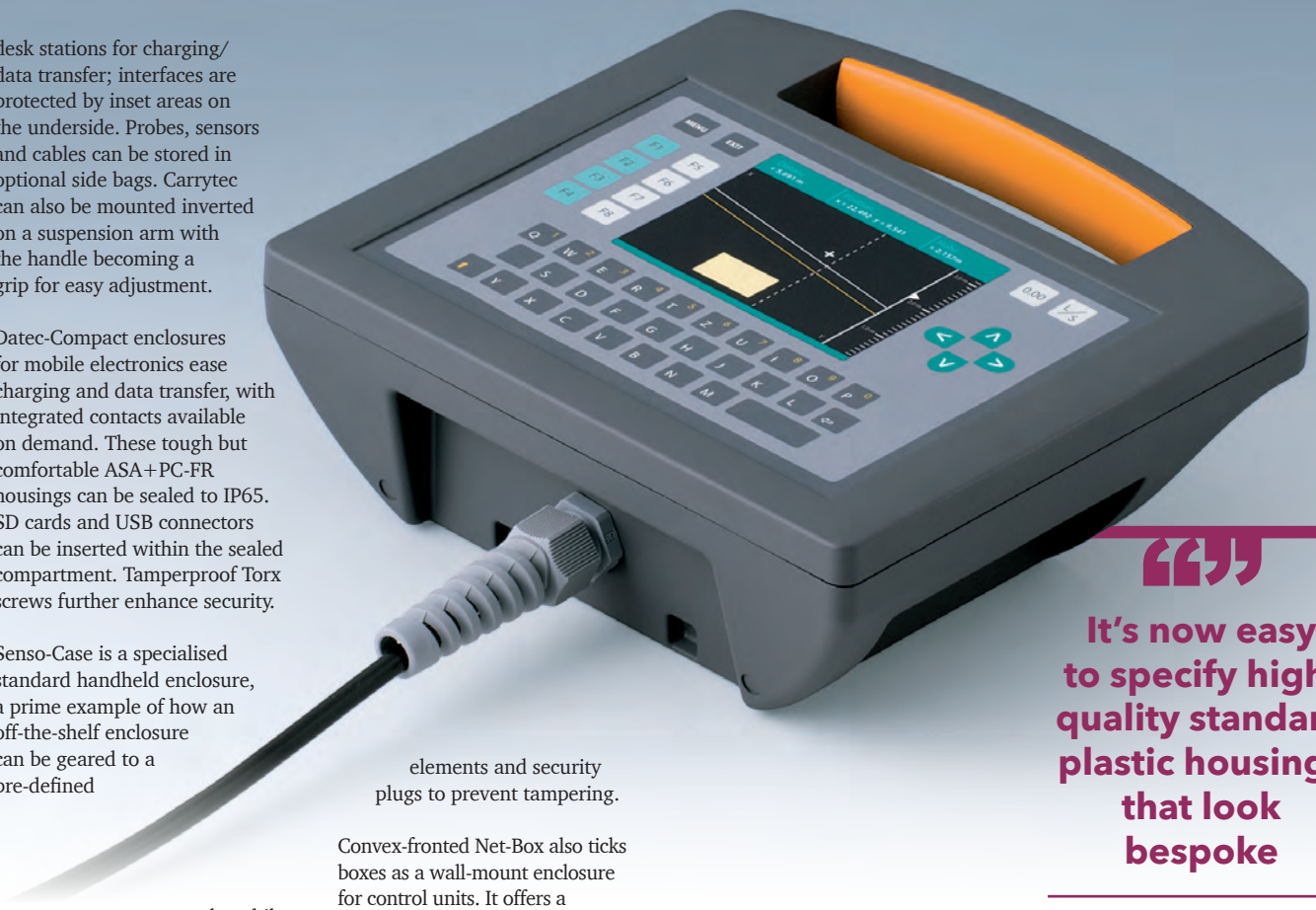
Fortunately, standard enclosures for measurement, control and automation no longer look standard. It's now easy to specify high-quality standard plastic housings that look bespoke. They need little customisation because they're so application-specific to start with, while remaining versatile enough to suit a range of roles.

Continue on page 36 >

Electronics designers have benefited from an acceleration in the pace of enclosure design and development in recent years. Specialist enclosure manufacturers such as OKW have ushered in range after range of new modern soft-contoured housings.

Expect to see enclosures with higher ingress protection ratings and tougher plastics that can withstand the surprisingly rapid destructive power of the sun's rays. Not so long ago, ABS was the plastic of choice—trusted for its dependable resilience. Now the latest soft-contoured models tend to be moulded from UV-stable ASA (or an ASA blend for added strength).

OKW's Carrytec is an example of a tough enclosure that is designed for one role (handheld instrumentation) but suits other tasks. These large attaché-case-style enclosures feature a strong integrated handle with a soft insert for added comfort. They can be docked in wall/



desk stations for charging/data transfer; interfaces are protected by inset areas on the underside. Probes, sensors and cables can be stored in optional side bags. Carrytec can also be mounted inverted on a suspension arm with the handle becoming a grip for easy adjustment.

Datec-Compact enclosures for mobile electronics ease charging and data transfer, with integrated contacts available on demand. These tough but comfortable ASA+PC-FR housings can be sealed to IP65. SD cards and USB connectors can be inserted within the sealed compartment. Tamperproof Torx screws further enhance security.

Senso-Case is a specialised standard handheld enclosure, a prime example of how an off-the-shelf enclosure can be geared to a pre-defined role, while suiting a range of applications. These ergonomic hand scanner housings can be specified with or without a trigger for easy data recording, measurement, control and stock/sales logging.

Intelligent building control and monitoring systems call for smart and discreet enclosure solutions. Smart-Panel is designed to blend seamlessly into modern residential, commercial and industrial environments. These slim touchscreen enclosures are designed to fit standard flush-mounted cavity wall boxes. Screwless assembly means they snap into place, speeding up installation. They can be opened just as quickly, using a dedicated opening tool.

Alternatively, Smart-Box offers features typically seen on modern diecast metal electronic enclosures: IP66 protection, concealed mounting screws and DIN rail pillars: yet it's manufactured from UV-stable ASA+PC-FR. That places it firmly within the realm of IoT/IIoT, smart factory, Industry 4.0 industrial electronics. Accessories include pressure equalisation elements and security plugs to prevent tampering.

Convex-fronted Net-Box also ticks boxes as a wall-mount enclosure for control units. It offers a capacious interior, easy three-point mounting system, deeply recessed area for interfaces, hidden fixings for enhanced aesthetics and an optional IP65 sealing kit.

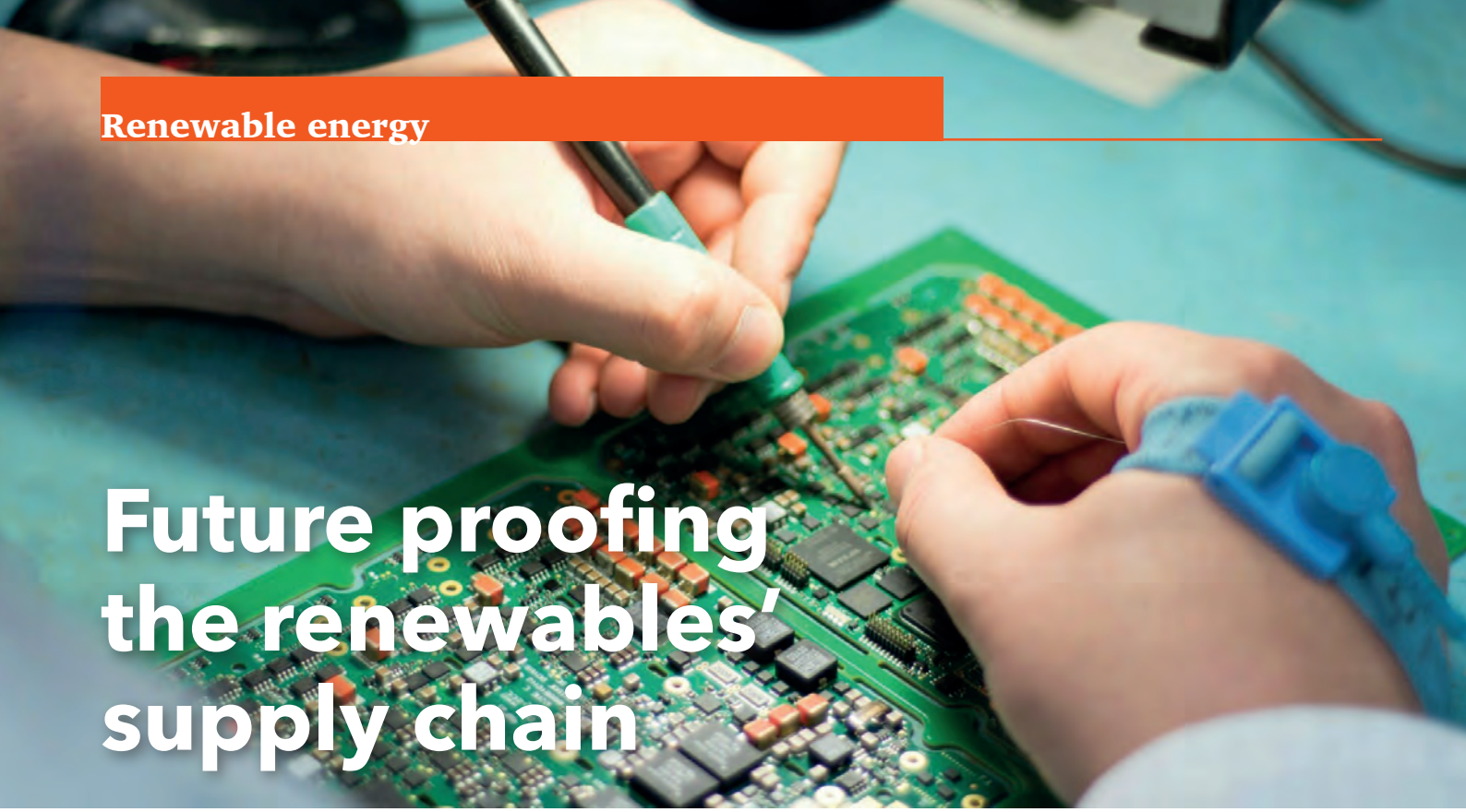
Like Carrytec, Net-Box is not restricted to its primary role. Magnetometer specialist Sensys specified Net-Box for its MagBase tripod-mounted measuring station. So, an enclosure designed to be fixed vertically and permanently to a wall is mounted horizontally on a portable tripod for a mobile application.

It makes sense to partner with an enclosures manufacturer that provides customisation services including machining, finishing, digital printing and laser marking. Customised housings can be shipped straight to the production line.

OKW Enclosures' marketing director, Robert Cox, said: "One expert manufacturer is fully accountable for the consistent quality of your enclosures from start to finish. You'll get peace of mind and a more streamlined order process."

www.okw.co.uk

"It's now easy to specify high-quality standard plastic housings that look bespoke



Future proofing the renewables' supply chain

When designing and manufacturing innovative products for the growing renewable energy sector, Jaltek emphasises the importance of partnering with a CEM who shares the vision

Over the past decade, renewable energy production has grown exponentially and is a topical issue worldwide. With rising pollution levels and the 'energy crunch', governments are being called to account. As well as addressing global warming, renewable power can help free economies from uncertain fossil fuel prices, reduce energy costs and strengthen market resilience in a time of constant change.

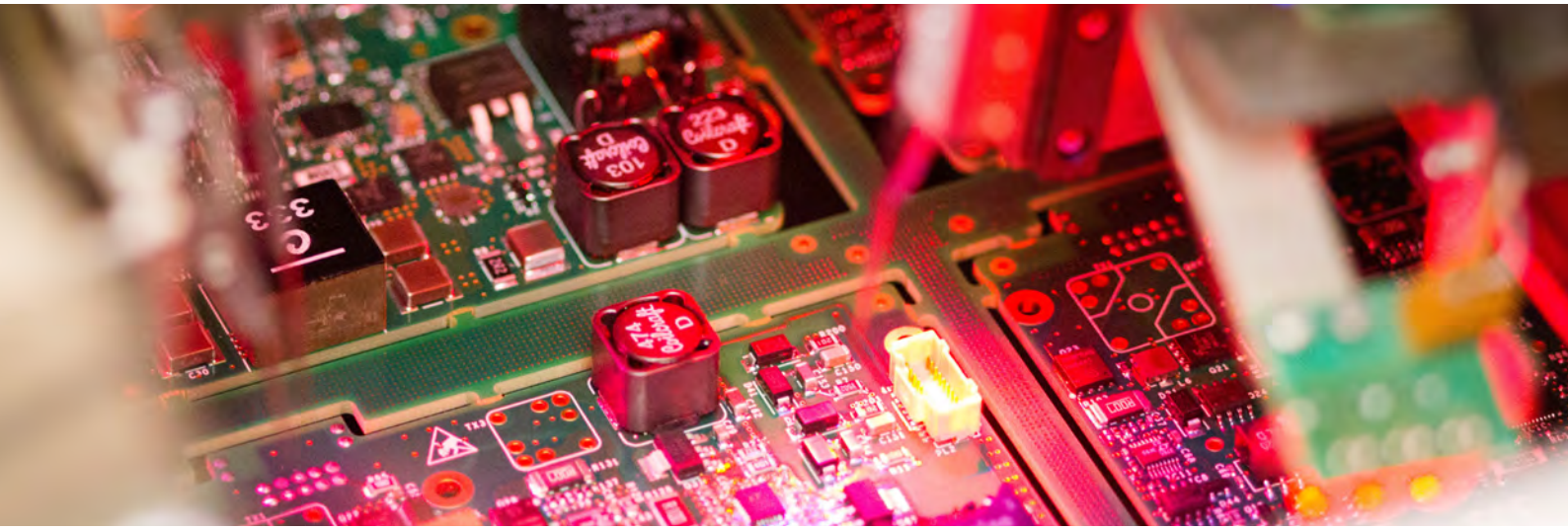
Demand for energy transition means the renewable energy sector is booming. New projects and trends are rapidly emerging, including energy-efficient integrations, digitisation and solutions that overcome the intermittent nature of renewable energy production.

As with traditional energy projects, the manufacture and operation of renewable energy products can be disrupted by supply chain issues, rising material costs, labour shortages and increased shipping costs. The unique features of renewable energy projects can make them more susceptible to supply chain issues. However, there are things stakeholders can do to help mitigate certain risks.

The renewable energy boom has created rising demand for components. One way stakeholders can future proof against supply chain risk is by working with a contract electronic manufacturer that uses bill-of-material management software. This helps identify potential component supply issues by managing BoM health, lifecycle, alternative components, counterfeits and conflict

Continues on page 40 >

> **Demand for energy transition means the renewable energy sector is booming**



electronica

MESSE
MÜNCHEN

November 15–18, 2022

Driving sustainable progress.

Discover the future today.
At electronica 2022.

Get your ticket now!
electronica.de/tickets

minerals. Coupled with thorough local/offshore purchasing strategies through preferred suppliers, this ensures a supply chain that delivers true added value. Products have a faster time-to-market, lower cost and higher reliability and longevity, all key factors in the renewable energy market.

Whilst technologies used in renewable energy projects are now well understood, the sector is not fully established and remains in the development stage. New technologies are being brought to market and when these technologies are used in practice problems can cause delays.

Finding a CEM that offers advanced, innovative and cost effective engineering solutions to support product from concept, through design and development, to commercial success is key. A seamless transition through the prototyping and pre-production stages, to manufacture can then be achieved. This, alongside stringent procurement standards and rigorous inspection and testing protocol ensures products meet the demands of the energy industry.

As concern for climate change grows and demand for cleaner and cheaper energy sources gains momentum, renewable energy growth is poised to accelerate in 2023 with exciting and innovative developments forecast. Choose the right design and manufacturing partner who shares this vision and they will work as an extension of your own business.

www.jaltek.com

Input Systems and Display Solutions

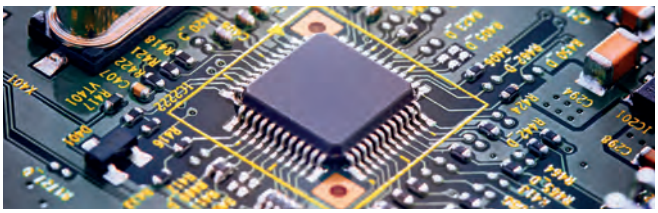
- Human-machine interface applications
- Suitable for medical environments
- EMC compliance
- Customised solutions

+44 1296 319 000
sales.uk@schurter.com
schurter.com/Solutions

SCHURTER
ELECTRONIC COMPONENTS

Jaltek

www.jaltek.com



Working with Customers to create history

Jaltek Systems is a leading AS9100 and ISO 13485 accredited UK contract electronics manufacturer with over 30 years' experience.

We offer a comprehensive range of integrated design and manufacturing services adapted to meet our customer's varied requirements.

Focusing on low to medium volume, high mix product profiles for a range of industries, Jaltek uses advanced systems to support products throughout their lifecycle, offering a single service or complete solution.

We have a diverse customer base, from global PLCs to start-up ventures, many have worked with us for over 15 years - testament to our customer focus and support in an ever changing marketplace.

- 3 SMT Lines
- Dedicated NPI Line
- PCB Layout
- Selective Solder & Manual Assembly IPC-A-610 Class 3 workmanship standard
- Cable Assembly
- Conformal Coating
- Pressfit
- Extensive test suite
- X-ray
- State-of-the-art 3D inspection
- Box-build & High Level Assembly
- System Integration

Jaltek Systems
Unit 13 Dencora Way
Sundon Park
Luton
Bedfordshire
LU3 3HP
+44 (0)1582 578170
info@jaltek.com

Key Sectors: Automotive & EV | Clean Energy | Defence & Aerospace | Homeland Security Medical | Oil & Gas | Semiconductor | Space

ECS

The Electronic Component Show

OXFORD 2023

25th MAY 2023

Kassam Stadium ▪ Oxford ▪ OX4 6DE

The **free one-day** tabletop event for those who **design, source** and **buy** electronic components & associated services.

EXHIBITORS INCLUDE

NCAB GROUP

QPE

AZEGO THE COMPONENT PEOPLE

component sense

Rebound Electronics

Powell

LEMO®

SAS SPEED ASSEMBLY SERVICES

+ MANY MORE!*

Want to find out more? Visit **www.electronic-component-show.co.uk**
To register, get fast track entry and a copy of the show guide scan the **QR code** with your smartphone camera or visit:
www.eventbrite.co.uk/e/electronic-component-show-ecs-2023-tickets-403359528207

Proudly sponsored by:

WINSOURCE ELECTRONICS

ELECTRONICS sourcing

eBOM.com

mmg PUBLISHING LIMITED

* View all our exhibitors on our website at *www.electronic-component-show.co.uk*

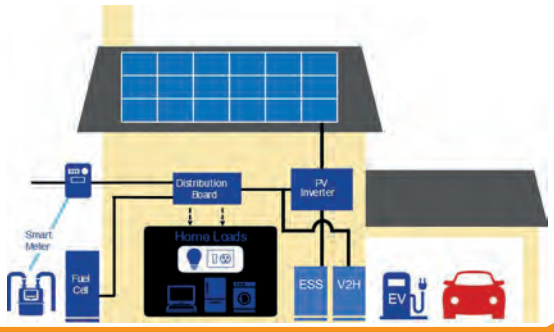
Photocouplers suit green energy applications

Farnell is now shipping new smart gate driver photocouplers from Toshiba. Available for fast delivery, the photocoupler range includes the TLP5212 and TLP5222 devices which suit a range of applications including: inverter circuits used in industrial control equipment; power conditions in solar power systems and UPS; and residential home battery systems. The devices' features help users benefit from increased space and system cost savings.

Both devices offer functions including VCE (sat) or VDS (sat) detection, Miller clamping and a fault outputting function plus general-purpose gate driver coupler to protect the IGBT from overcurrent generated in the inverter stage.

The Miller clamping function suppresses gate potential rise and IGBT malfunction by bypassing the Miller current generated when the IGBT is turned off to ground. The TLP5212 requires an input-side signal to resume from shutdown protection, while the TLP5222 resumes automatically after a specified time. The package is a low profile SO16L with -40 to 110°C operating temperature.

www.farnell.com



Supporting sustainable energy

Omron Electronic Components Europe is supporting the roll out of sustainable energy sources with a range of products for PV inverters, battery energy storage systems and EV charging systems.

For example, Omron's G9KB PCB power relay provides bi-directional high power DC switching for the next generation of renewable battery energy storage systems for homes and DC wall boxes for electric vehicles. It can replace two standard uni-directional relays in this type of application.

In a vehicle-to-home system, the relay lets an EV battery power a household electricity system when the solar panels are not generating power. In a vehicle-to-grid system it allows stored energy to be exported to the grid.

Another product example is Omron's G7L-X relay with a rated load of 1,000VDC at 25A and a release time of just 30ms, making it ideal as a disconnect relay for PV panels, EV chargers or other renewable sources. It provides fast and complete disconnection in an emergency, to permit maintenance or in response to utility requests.

www.omron.com

THE PLACE FOR
Failure Analysis and In-depth Non-Destructive Inspection

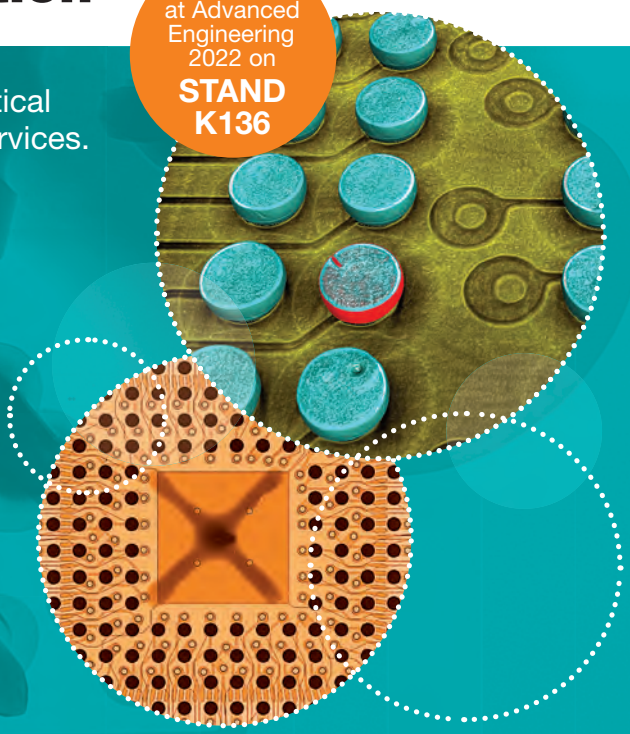
Cupio SERVICES

Visit us at Advanced Engineering 2022 on **STAND K136**

Cupio Services provides x-ray, acoustic, optical and electronic test, inspection and analysis services.

If you only require inspection, test or analysis services occasionally throughout the year, the requirement to purchase our equipment may not be necessary, this is where Cupio Services is the answer.

- Cutting-edge inspection and test equipment
- Functional testers and counterfeit part detection
- High resolution x-ray with multiple CT imaging options
- Acoustic microscopes for delamination detection within boards or complex devices
- Full failure analysis reports.



Cupio Services Ltd
+44 (0) 1256 262800
info@cupioservices.co.uk
www.cupioservices.co.uk

Beechwood,
Chineham Business Park,
Basingstoke, Hampshire,
RG24 8WA

SOUTHERN 23 Manufacturing & Electronics

Incorporating The Subcontract Engineering Exhibition
AUTOAERO
FARNBOROUGH • 7-9 FEBRUARY 2023

FARNBOROUGH | Hants | GU14 6TQ

7th | 8th | 9th FEBRUARY 9.30am - 4.30pm *(3.30pm close Thurs)*

FREE SEMINARS
FREE PARKING

Where Industry and Innovation converge

Over 600 national and international suppliers come together to exhibit at Farnborough International Exhibition and Conference Centre this February for Southern Manufacturing and Electronics (inc AutoAero) 2023. Meet the power behind UK manufacturing industry and see live demonstrations and new product launches of machine tools & tooling, electronics, factory & process automation, packaging & handling, labelling & marking, 3D print technology, test & measurement, materials, composites & adhesives, rapid prototyping, ICT, drives & controls and laboratory equipment.

Free industry seminar programme online @ **www.industrysouth.co.uk**

The exhibition is **free** to attend, **free** to park and easy to get to. Doors open at 9.30am on Tuesday 7th February.

- AUTOMATION
- DEFENCE
- ELECTRONICS
- AUTOSPORT
- MARINE
- AEROSPACE
- TRANSPORTATION
- PACKAGING
- ELECTRICAL & MECHANICAL ENGINEERING
- ADDITIVE MANUFACTURING
- LOGISTICS
- FOOD & DRINK
- ENERGY
- SMART MANUFACTURING
- SPACE ENGINEERING
- R&D
- MEDICAL
- COMPOSITES
- CONSTRUCTION

PRE-REGISTER TODAY
for your Fast Track Entry Badge, Preview Magazine and Event Catalogue at
www.industrysouth.co.uk

SOUTHERN MANUFACTURING & ELECTRONICS
is an ETES event organised by European Trade & Exhibition Services Ltd
Tel 01784 880890 · email philv@etes.co.uk

etes Regional Manufacturing Exhibitions

Distributors grow line cards even as supply chain turmoil deepens

Distributors continue to add line cards to expand offerings even as they initiate inventory reduction actions to support suppliers as global demand weakens

As the electronics industry went through another one of its supply chain disruptions over the last two years, component distributors responded with critical supply chain management moves that included the addition of new supplier line cards to help ensure they could continue servicing customers through the crisis. All the top distributors reported additional agreements with suppliers of semiconductors, passives and electromechanical components in addition to other partnerships and inventory management actions.

Today, as suppliers report slowing demand in the face of global economic malaise, distributors are stepping up with strategies to deflect the worst of the market downturn. They are helping to whittle down inventories and to reduce the impact of dropping average selling prices on profit margins and supplier cash flow. Many suppliers rely especially on distributors for regular inventory level updates to enhance the management of their internal productions and foundry commitments.

Companies like Mouser Electronics said they added dozens of suppliers in recent years and have continued even amidst signs the industry was beginning to experience another downturn. This is the extra value that distributors provide to help smooth the industry's wild cycles, they said. By increasing the number of suppliers, they ensure that customers can see them as one-stop service providers. This was problematic during the period of scattered shortages, but most OEMs still appreciate the opportunity to source components from a single provider before branching out to supplement procurement operations with offerings from second tier sources.

In addition to widening their roster of suppliers, distributors also provided value-added services to suppliers and customers by expanding technical literature, hiring more field application engineers and by beefing up digital services. Mouser, for instance, increased line cards, but the company also added technical information to its websites and increased opportunities for designers to educate themselves about the components ahead of procurement contracts. Mouser said it also uses other avenues to reach out to customers, including newsletters, whitepapers and other technical documents on its website and via presentations by its employees.

"Mouser's customers can expect 100% certified, genuine products that are fully traceable from each of its manufacturer partners," the company said, in a statement on its website. "To help speed customers' designs, Mouser's website hosts an extensive library of technical resources, including a Technical Resource Center, along with product data sheets, supplier-specific reference designs, application notes, technical design information, engineering tools and other helpful information."

> **"Engineers look to Mouser for the latest, most innovative products for their designs, and we strive to meet their expectations"**
>
> **Jeff Newell**, senior VP, products, **Mouser**

Adds Jeff Newell, Mouser's senior vp of products, in a September statement announcing the addition of 36 new vendor lines, "Engineers look to Mouser for the latest, most innovative products for their designs, and we strive to meet their expectations by connecting them with leading component manufacturers in our ever-expanding line card."

The company said it now has more than 1,200 suppliers offering a broad range of components. Companies added this year to Mouser's line card include NAND flash and SSD technology supplier Solidigm and Allegro MicroSystems, which makes power and sensing products for motion control and energy-efficient systems. Labforge, a supplier of smart cameras, also joined Mouser's supplier roster during the year, the company said.

Bulking Up

Line card addition activities have been especially robust in the specialised distributor segment where companies distinguish themselves on their ability to support customers with offerings that they may have problems sourcing

eBOM.com
THE GAME CHANGING SITE FOR THE ELECTRONICS INDUSTRY

powered by TrustedParts.com

elsewhere. In October, Heilind, a specialist in connectors, relays, sensors, switches and other components, increased its offerings with the addition of modular hybrid connectors from JAE. It added JAE's KN06 series connectors used in heavy equipment by industrial OEMs and semiconductor manufacturers. Heilind earlier this year introduced additional components from Amphenol, Hirose, Omron and Panduit, among others.

Tier-1 distributor Avnet Inc. has also been busy beefing up its supplier list. In September, the company reached an agreement to represent Andapt, a supplier of programmable power management semiconductors. Avnet said it would begin offering the Irish company's products immediately to customers worldwide.

"Andapt's programmable PMICs have a potential to be a game changer for the industry much like programmable logic devices (PLDs) and FPGAs integrated discrete logic components," said Alex Iuorio, senior vp, business development at Avnet. "Andapt's programmable PMICs will provide Avnet customers with similar benefits as PLDs/FPGAs such as increased design flexibility and configurability, reduced part count and board space, and quicker time to market."

Earlier in the year, Avnet rolled out ADAS sensing solutions from LeddarTech, adding to other deals made since Phil Gallagher took over as CEO two years ago. The Avnet boss had promised "to build on Avnet's core distribution business by leveraging our talented people and strong relationships to deliver profitable growth."

Perhaps the most significant deal Avnet struck this year, though, was its collaboration with Amazon Web Services to support OEMs in the IoT market. The agreement would link Avnet's IoTConnect platform with AWS' portfolio and leverage cloud offerings for design engineers in the connectivity space. Avnet would be able to access a range of AWS services, "including IoT, machine learning, analytics, and compute services," the companies said.

Avnet said the agreement would enable OEMs to focus on design activities, including the design of applications, and accelerate their time-to-market by tapping into the distributor's network of systems integrators and software developers.

"Avnet lives at the intersection of connected technology by regularly working with leading hardware manufacturers and building our expertise at the edge and cloud," said Lou Lutostanski, vp of IoT at Avnet. "With our help, OEMs don't have to go it alone to deliver simple, fast and secure IoT implementations. Our collaboration with AWS will help OEMs design, build, deploy and manage cloud connected devices, applications and solutions at scale."

Outreaches like these were essential to staying nimble and responsive to customers at the height of the ongoing supply crisis despite strains on resources from the outbreak of Covid-19. Employees at many distributors were impacted by the pandemic, which forced companies to adjust operations and shift some workers to home locations. Ongoing efforts to source components for OEM customers also crimped resources although distributors said they complemented operations with digital services that helped to reduce the pressure.

Online distributor Digi-Key, too, has increased the number of products on its line card this year. It recently added Schneider Electric, a vendor of electrical and automation products. The agreement in September covers North America, according to Eric Wendt, director of automation at Digi-Key.

Lou Lutostanski, VP, internet of things, **Avnet**

"Avnet lives at the intersection of connected technology by regularly working with leading hardware manufacturers and building our expertise at the edge and cloud"

"Digi-Key and Schneider Electric are going the extra mile to provide the absolute best possible customer support," Wendt said. "Digi-Key customers can now access much of Schneider's portfolio of high-quality products for a wide range of applications and markets, ranging from industrial automation to power management, and many solutions in between."

Inventory reduction

As the industry transitions to a new growth phase marked by a weakening economic environment, distributors are also modifying their strategies and focusing more on inventory reduction activities. With manufacturers reporting sharply lower sales forecasts, distribution executives said they must be ready to support customers in the downcycle as they tamp down on production. Supportive actions here would include more frequently disseminating information on inventory levels, actual consumption and expansion of sales into adjacent markets.

In a sign of the changing times, Arrow Electronics in its *Market Trends* report noted that it was monitoring order cancellations at suppliers and foundries, noting that the industry should prepare for a "a period of more orderly growth," according to the report.

"Against the current background and trends, distributors as the intermediate link of the whole industrial chain have big room to leverage their role," the report said. "Although they cannot directly regulate the chip market, it is nevertheless possible for distributors to play their role as a 'reservoir,' strengthen communication with manufacturers for updates and capacity information, and strive to obtain more supply support from them, meet customer needs and get competitive prices as much as possible."

DISCOVER | SOURCE | COMPARE | BUY

Manufacturer	Distributor	Telephone	Website	Franchised Distributor	No. of Lines for Principal	Stock Value for Principal	Minimum Order Value	% Lead Free for Principal Range	No. of Technical Support Staff	Total No. of Staff	Buffer Stock Facility
CABLE ASSEMBLY & HARNESSING											
Amphenol	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	3,000	N/A	0 €	N/A	50	2,500+	Y
FTDI	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	50	N/A	0 €	N/A	50	2,500+	Y
Harwin	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	600	N/A	0 €	N/A	50	2,500+	Y
Molex	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,550	N/A	0 €	N/A	50	2,500+	Y
Phoenix Contact	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,200	N/A	0 €	N/A	50	2,500+	Y
CIRCUIT PROTECTION											
Bourns	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,800	N/A	0 €	N/A	50	2,500+	Y
EPCOS/TDK	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,950	N/A	0 €	N/A	50	2,500+	Y
Littelfuse	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	11,450	N/A	0 €	N/A	50	2,500+	Y
Vishay	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	3,150	N/A	0 €	N/A	50	2,500+	Y
ENCLOSURES											
Bud Industries	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,600	N/A	0 €	N/A	50	2,500+	Y
Hammond	Switch Electronics	01482 862255	switchelectronics.co.uk	Y	500	N/A	£0	70%	2	6	Y
Hammond	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	3,350	N/A	0 €	N/A	50	2,500+	Y
Metcase Enclosures	OKW Enclosures	01489 583858	www.metcase.co.uk	N	288	£40,000	£0	N/A	5	22	Y
New Age Enclosures	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	150	N/A	0 €	N/A	50	2,500+	Y
OKW Enclosures Ltd	OKW Enclosures	01489 583858	www.okw.co.uk	N	1,955	£40,000	£0	N/A	5	22	Y
Rolec Enclosures	OKW Enclosures	01489 583858	www.rolec-enclosures.co.uk	Y	935	£40,000	£0	N/A	5	22	Y
Teko Enclosures	OKW Enclosures	01489 583858	www.teko.co.uk	Y	1,860	£40,000	£0	N/A	5	22	Y
FREQUENCY MANAGEMENT											
ABRACON	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,750	N/A	0 €	N/A	50	2,500+	Y
Analog Devices Inc.	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	150	N/A	0 €	N/A	50	2,500+	Y
ECS	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,050	N/A	0 €	N/A	50	2,500+	Y
Epson	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	900	N/A	0 €	N/A	50	2,500+	Y

Services Sourcing

CEM

DEVICE PROGRAMMING

TAPE REELING

INTERCONNECTION

WANT TO ADVERTISE HERE?

Contact us at **sales@electronics-sourcing.com** or call us on **01892 613400**

Manufacturer	Distributor	Telephone	Website	Franchised Distributor	No. of Lines for Principal	Stock Value for Principal	Minimum Order Value	% Lead Free for Principal Range	No. of Technical Support Staff	Total No. of Staff	Buffer Stock Facility
Golledge Electronics Ltd	Golledge Electronics Ltd	01460 256 100	www.golledge.com	N	N/A	£800,000	£0	100%	12	24	Y
IQD Frequency Products	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,500	N/A	0 €	N/A	50	2,500+	Y
Jauch Quartz	Digi-Key Electronics	0800 587 0991	www.digikey.co.uk	Y	500	£250,000	0	100%	15	130	Y
Kyocera	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	950	N/A	0 €	N/A	50	2,500+	Y
Microchip	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,450	N/A	0 €	N/A	50	2,500+	Y
Murata	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	550	N/A	0 €	N/A	50	2,500+	Y
Silicon Laboratories	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	500	N/A	0 €	N/A	50	2,500+	Y
TXC Corporation	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	500	N/A	0 €	N/A	50	2,500+	Y
HEATSINKS											
Aavid	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	200	N/A	0 €	N/A	50	2,500+	Y
ICs & SEMICONDUCTORS											
Alliance Memory	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	500	N/A	0 €	N/A	50	2,500+	Y
Analog Devices Inc.	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	18,700	N/A	0 €	N/A	50	2,500+	Y
	Avant Electronics LTD	01449 774247	www.avantelectronics.co.uk	N	5000	N/A	£100	N/A	2	10	Y
Broadcom Limited	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	200	N/A	0 €	N/A	50	2,500+	Y
Central Semiconductor	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,250	N/A	0 €	N/A	50	2,500+	Y
Cirrus Logic	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	200	N/A	0 €	N/A	50	2,500+	Y
Cree, Inc.	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	200	N/A	0 €	N/A	50	2,500+	Y
Diodes Incorporated	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	8,200	N/A	0 €	N/A	50	2,500+	Y
FTDI	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	100	N/A	0 €	N/A	50	2,500+	Y
Infineon	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	8,300	N/A	0 €	N/A	50	2,500+	Y
Intel	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,750	N/A	0 €	N/A	50	2,500+	Y
Maxim Integrated	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	14,050	N/A	0 €	N/A	50	2,500+	Y
Microchip	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	24,200	N/A	0 €	N/A	50	2,500+	Y
Micron Technology	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	600	N/A	0 €	N/A	50	2,500+	Y
Monolithic Power Systems (MPS)	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	850	N/A	0 €	N/A	50	2,500+	Y
Nexperia	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	7,600	N/A	0 €	N/A	50	2,500+	Y
Nordic Semiconductor	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	60	N/A	0 €	N/A	50	2,500+	Y
NXP	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	4,700	N/A	0 €	N/A	50	2,500+	Y
ON Semiconductor	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	18,700	N/A	0 €	N/A	50	2,500+	Y
Power Integrations	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	750	N/A	0 €	N/A	50	2,500+	Y
Qorvo	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	700	N/A	0 €	N/A	50	2,500+	Y
Renesas Electronics	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	5,550	N/A	0 €	N/A	50	2,500+	Y
ROHM Semiconductor	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	6,900	N/A	0 €	N/A	50	2,500+	Y
Semtech	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	350	N/A	0 €	N/A	50	2,500+	Y
Silicon Laboratories	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,200	N/A	0 €	N/A	50	2,500+	Y
Skyworks	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	550	N/A	0 €	N/A	50	2,500+	Y
STMicroelectronics	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	10,050	N/A	0 €	N/A	50	2,500+	Y
Texas Instruments	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	39,050	N/A	0 €	N/A	50	2,500+	Y
Toshiba	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,050	N/A	0 €	N/A	50	2,500+	Y
Vishay	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	10,850	N/A	0 €	N/A	50	2,500+	Y
Xilinx	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,900	N/A	0 €	N/A	50	2,500+	Y
INTERCONNECTION											
3M	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,750	N/A	0 €	N/A	50	2,500+	Y
Amphenol	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	33,200	N/A	0 €	N/A	50	2,500+	Y
Cinch Connectivity Solutions	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	4,250	N/A	0 €	N/A	50	2,500+	Y
FCI / Amphenol	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	7,850	N/A	0 €	N/A	50	2,500+	Y
HARTING	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	6,800	N/A	0 €	N/A	50	2,500+	Y
Harwin	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,950	N/A	0 €	N/A	50	2,500+	Y
Hirose Electric	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	7,850	N/A	0 €	N/A	50	2,500+	Y
Intelliconnect (Europe) Ltd		01245 347145	www.intelliconnect.co.uk	N/A	N/A	N/A	N/A	100%	5	30	
JAE Electronics	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,450	N/A	0 €	N/A	50	2,500+	Y
Molex	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	23,600	N/A	0 €	N/A	50	2,500+	Y
Phoenix Contact	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	17,150	N/A	0 €	N/A	50	2,500+	Y
Radiall	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,350	N/A	0 €	N/A	50	2,500+	Y
Samtec	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	16,300	N/A	0 €	N/A	50	2,500+	Y
Souriau	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	3,300	N/A	0 €	N/A	50	2,500+	Y
TE Connectivity	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	41,850	N/A	0 €	N/A	50	2,500+	Y
Wurth Elektronik	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,650	N/A	0 €	N/A	50	2,500+	Y

Manufacturer	Distributor	Telephone	Website	Franchised Distributor	No. of Lines for Principal	Stock Value for Principal	Minimum Order Value	% Lead Free for Principal Range	No. of Technical Support Staff	Total No. of Staff	Buffer Stock Facility
OBSOLESCENCE / HARD TO FIND											
	Cyclops Electronics	01904 415 415	www.cyclops-electronics.com	N/A	177,232	£12m	£100	75%	3	78	Y
Rochester Electronics	Rochester Electronics	+44.1480.408400	www.rocelec.com	Y	299	N/A	$250	N/A	10	400+	Y
OPTO ELECTRONICS											
Broadcom Limited	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,300	N/A	0 €	N/A	50	2,500+	Y
Cree, Inc.	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	3,800	N/A	0 €	N/A	50	2,500+	Y
Intel	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	20	N/A	0 €	N/A	50	2,500+	Y
Osram Opto Semiconductor	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,300	N/A	0 €	N/A	50	2,500+	Y
Toshiba	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	450	N/A	0 €	N/A	50	2,500+	Y
Vishay	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,350	N/A	0 €	N/A	50	2,500+	Y
PASSIVES											
AVX	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	17850	N/A	0 €	N/A	50	2,500+	Y
Bourns	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	15,100	N/A	0 €	N/A	50	2,500+	Y
Coilcraft	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	5,750	N/A	0 €	N/A	50	2,500+	Y
EPCOS / TDK	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	5,450	N/A	0 €	N/A	50	2,500+	Y
KEMET	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	23,650	N/A	0 €	N/A	50	2,500+	Y
Murata	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	18700	N/A	0 €	N/A	50	2,500+	Y
Ohmite	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	6,550	N/A	0 €	N/A	50	2,500+	Y
Panasonic	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	25,450	N/A	0 €	N/A	50	2,500+	Y
Taiyo Yuden	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	5,100	N/A	0 €	N/A	50	2,500+	Y
TDK	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	13,050	N/A	0 €	N/A	50	2,500+	Y
TE Connectivity	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	11,500	N/A	0 €	N/A	50	2,500+	Y
TT Electronics	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	5,050	N/A	0 €	N/A	50	2,500+	Y
Vishay	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	43850	N/A	0 €	N/A	50	2,500+	Y
Wurth Elektronik	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	6,750	N/A	0 €	N/A	50	2,500+	Y
Yageo	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	21,450	N/A	0 €	N/A	50	2,500+	Y
PASSIVES ALTERNATIVES											
BEC Distribution Ltd		01844 275824	www.bec.co.uk		5,000	N/A	£0	100%	3	5	Y
POWER & BATTERIES											
FRIWO Gerätebau GmbH	Haredata Electronics	01423 796240	www.haredata.co.uk	Y	250 - 500	€1M	£250	100%	7	14	Y
Jauch Quartz		01276 605900	www.jauch.com			£500,000	0	95	15	130	Y
Mean Well	Ecopac (UK) Power Ltd	01844 204420	www.ecopacpower.co.uk	Y	6,000	£2M	£0	100%	8	30	Y
Bel Power Solutions	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	600	N/A	0 €	N/A	50	2,500+	Y
CUI Inc.	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,200	N/A	0 €	N/A	50	2,500+	Y
MEAN WELL	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	4,400	N/A	0 €	N/A	50	2,500+	Y
Murata	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1500	N/A	0 €	N/A	50	2,500+	Y
RECOM	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	3,150	N/A	0 €	N/A	50	2,500+	Y
TDK-Lambda	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,900	N/A	0 €	N/A	50	2,500+	Y
TRACO Power	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	4,000	N/A	0 €	N/A	50	2,500+	Y
Vicor	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,300	N/A	0 €	N/A	50	2,500+	Y
XP Power	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,200	N/A	0 €	N/A	50	2,500+	Y
SENSORS											
ams	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	150	N/A	0 €	N/A	50	2,500+	Y
Analog Devices Inc.	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	300	N/A	0 €	N/A	50	2,500+	Y
Bosch	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	25	N/A	0 €	N/A	50	2,500+	Y
Honeywell	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,200	N/A	0 €	N/A	50	2,500+	Y
Maxim Integrated	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	350	N/A	0 €	N/A	50	2,500+	Y
NXP	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	300	N/A	0 €	N/A	50	2,500+	Y
Sensirion	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	80	N/A	0 €	N/A	50	2,500+	Y
STMicroelectronics	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	75	N/A	0 €	N/A	50	2,500+	Y
TE Connectivity	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	650	N/A	0 €	N/A	50	2,500+	Y
Texas Instruments	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	850	N/A	0 €	N/A	50	2,500+	Y
SWITCHES & KEYBOARDS											
Apem	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,850	N/A	0 €	N/A	50	2,500+	Y
C&K Switches	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	5,550	N/A	0 €	N/A	50	2,500+	Y
E-Switch	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	2,350	N/A	0 €	N/A	50	2,500+	Y

Manufacturer	Distributor	Telephone	Website	Franchised Distributor	No. of Lines for Principal	Stock Value for Principal	Minimum Order Value	% Lead Free for Principal Range	No. of Technical Support Staff	Total No. of Staff	Buffer Stock Facility
EAO	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,800	N/A	0 €	N/A	50	2,500+	Y
Honeywell	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	4,700	N/A	0 €	N/A	50	2,500+	Y
NKK Switches	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	4,000	N/A	0 €	N/A	50	2,500+	Y
Omron	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	4,700	N/A	0 €	N/A	50	2,500+	Y
Panasonic	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	550	N/A	0 €	N/A	50	2,500+	Y
TE Connectivity	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,350	N/A	0 €	N/A	50	2,500+	Y
TERMINAL BLOCKS											
Marathon Special Products	Global Supply Services	01904 436 488	www.global-supply-services.com	Y	8,000	£800,000	£100	100%	3	11	Y
Molex	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,850	N/A	0 €	N/A	50	2,500+	Y
Phoenix Contact	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	13,550	N/A	0 €	N/A	50	2,500+	Y
TE Connectivity	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,750	N/A	0 €	N/A	50	2,500+	Y
THERMAL MANAGEMENT											
Bergquist Company	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	250	N/A	0 €	N/A	50	2,500+	Y
Delta Electronics	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	700	N/A	0 €	N/A	50	2,500+	Y
ebm-papst	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,450	N/A	0 €	N/A	50	2,500+	Y
EMI Thermal	EMI Thermal	01992 510000	www.emithermal.com	N	800	N/A	£20	100%	12	200	Y
Materials Direct	Materials Direct	+44 (0)1908 222 211	www.materials-direct.com	N/A	N/A	£1,000,000	£0	N/A	5	55	Y
Sanyo Denki	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,450	N/A	0 €	N/A	50	2,500+	Y
Sunon	G.English Electronics Ltd	0208 855 0991	www.gelec.co.uk	Y	3,500	£1,000,000+	£0	100%	10	28	Y
Sunon	Thermaco Ltd	01684 566163	www.thermaco.co.uk	Y	3,500	£450,000	£100	100%	7	15	Y
Universal Science	Universal Science	+44 (0)1908 222 211	www.universal-science.com	N/A	N/A	£1,000,000	£0	N/A	5	55	Y
TRANSFORMERS & INDUCTORS											
Best Windings	Best Windings	0044 (0)1394 448424	www.bestwindings.co.uk	N	300	N/A	£100	N/A	2	24	Y
Bourns	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	4,900	N/A	0 €	N/A	50	2,500+	Y
Coilcraft	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	5,500	N/A	0 €	N/A	50	2,500+	Y
EPCOS / TDK	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,300	N/A	0 €	N/A	50	2,500+	Y
Murata	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	6,900	N/A	0 €	N/A	50	2,500+	Y
TDK	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	4,050	N/A	0 €	N/A	50	2,500+	Y
Vishay	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	1,200	N/A	0 €	N/A	50	2,500+	Y
Wurth Elektronik	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	3,400	N/A	0 €	N/A	50	2,500+	Y
WIRELESS SOLUTIONS											
DIGI	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	200	N/A	0 €	N/A	50	2,500+	Y
Espressif	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	30	N/A	0 €	N/A	50	2,500+	Y
Laird Connectivity	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	100	N/A	0 €	N/A	50	2,500+	Y
Lantronix	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	25	N/A	0 €	N/A	50	2,500+	Y
Microchip	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	150	N/A	0 €	N/A	50	2,500+	Y
Murata	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	30	N/A	0 €	N/A	50	2,500+	Y
Silicon Laboratories	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	150	N/A	0 €	N/A	50	2,500+	Y
Texas Instruments	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	20	N/A	0 €	N/A	50	2,500+	Y
u-blox	Mouser Electronics	01494-427500	www.mouser.co.uk	Y	10	N/A	0 €	N/A	50	2,500+	Y

Contract Manufacturers Buyers' Guide

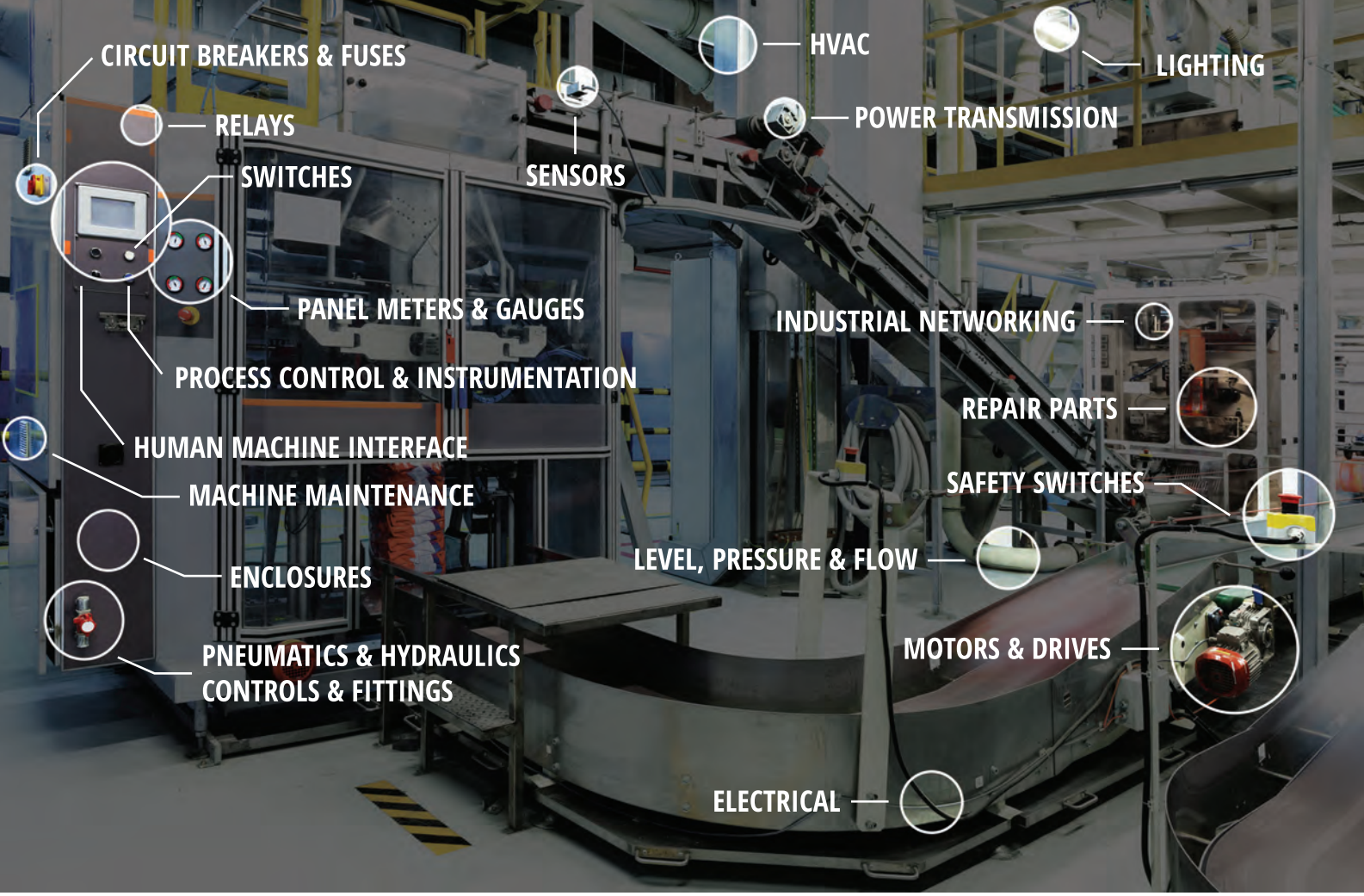
Manufacturer	Telephone	Website	Turnover	Location	Employees	Number of Surface Mount Lines	Approvals	BGA Capacity	Lead Free Manufacturer	Prototyping	Design Capability	Full Turnkey	Cables and Harnessing
Challenger Solutions Ltd	01245 325252	www.challengersolutions.com	£10m	Essex/SE	70	9	AS9100 Rev D, ISO9001:2015, ISO 140001:2015, UL , CCC, IPC-610-G Class 3, TUV	Y	Y	Y	Y	Y	Y
CML Innovative Technologies (uk) Ltd	01284 714700	www.cml-it.com	£12M	UK/EU/China	65		ISO9001, TS16949, UL ISO9001 2015, IATF 16949 2016	N	Y	Y	Y	Y	Y
Corintech Ltd	+44 (0)1425 655655	www.corintech.com	£12.5m	UK & Far East	72	10	AS9100, ISO9001, IPC-A-610 Class 3, J-STD-001	Y	Y	Y	Y	Y	Y
Custom Interconnect Ltd	01264 321321	www.cil-uk.co.uk	£18.6m	Andover (Hampshire)	130	6	AS9100 ISO13485 ISO9001 IPC-A-610 Class 3	Y	Y	Y	Y	Y	Y
Electronic Technicians Ltd	01202 897722	www.etluk.co.uk	£3.7m	SE	50	2	AS9100, ISO9001, ISO14001, IPC610/620 Class 3	Y	Y	Y	Y	Y	Y
FermionX Ltd	+44(0)1903 524600	www.fermionx.com	£6.5m	Worthing, W. Sussex	56	3	ISO9001:2015, ISO4001:2015, IPC-A-610 Class 2& 3, IPC-J-STD-001	Y	Y	Y	Y	Y	Y
G&B Electronic Designs Ltd	01420 474188	www.gandbelectronics.co.uk	£4.6m	Hampshire	60	2	ISO9001, ISO13485, IPC-A-610, IPC J-STD-001, IPC 7711/7721	Y	Y	Y	N	Y	N
Hallmark Electronics Ltd	01782 562255	www.hallmarkelectronics.com	£2.4m	Staffordshire	26	2	ISO9001:2015, IPC-A-610 to Class 3, UL	Y	Y	Y	Y	Y	Y
Icon Electronics Limited	01423 449080	www.iconelectronics.co.uk	£8.5m	Hampshire & Yorkshire	75	6	AS9100, ISO9001, BS EN ISO/IEC 80079-34:2018 ATEX, IPC-A-610 Class 3	Y	Y	Y	Y	Y	Y
Incap Electronics UK Limited	01782 753200	www.incapcorp.com	€169,8m	UK, Slovakia, Estonia & India	2,500	22	ISO9100, ISO14001, ISO13485, AS9100D, ISO45001 & IATF16949	Y	Y	Y	Y	Y	Y
Industrial Electonic Wiring Ltd.	+44(0)1793 694033	www.iew.co.uk	£5.5m	Swindon, UK	60	N/A	ISO9001:2015, IPC610, IPC620	N	Y	Y	N	Y	Y
Jaltek	01582578170	jaltek.com	£15m	UK	105	3	AS9100, ISO9001, ISO13485, IPC-A-610 Class 3, Certified IPC Trainer (IPC-A-610, J-STD-001 & J-STD-001 Space Addendum)	Y	Y	Y	Y	Y	Y
KEY-TECH ELECTRONIC SYSTEMS	01592 597711	www.key-tech.co.uk	£7m	Scotland	65	2	ISO9001:2015, J-STD-001, IPC-610/620 CLASS 3, IPC-7711, BS EN ISO13485:2016, ISO 13485	Y	Y	Y	N	Y	Y
Nemco Limited	01438 346600	www.nemco.co.uk	£15.9m	SE	120	6	AS9100, ISO9001:2008, IPC610/620 to Class 3, ISO14001-2004, SC21	Y	Y	Y	Y	Y	Y
NOTE Group	01753 746700	www.note-uk.co.uk	£207m	UK/EU/China	1,200	20	IPC610 to Class 3, ISO9001:2015, 13485, 14001, 18001	Y	Y	Y	Y	Y	Y
M-TEK (Assembly) Ltd	01189 455377	www.mtek.co.uk	£2.4m	SE	30	4	IS9001,ISO14001, IPC-A-610 Class 3, IPC-7711/7721, WHMA-3620, Certified IPC Trainer	Y	Y	Y	Y	Y	Y
Pektron	01332 832424	www.pektron.com	£50m	E-Midlands	350	8	ISO9001, ISO14001, TS16949, BEAB, VCA, TUV, UL	Y	Y	Y	Y	Y	Y
Simtek EMS Ltd	01843 233120	www.simtekems.co.uk	£8.2m	SE	77	3	ISO9001:2008, ISO13485, IPC-A-610 Class 3 & IPC-7711	Y	Y	Y	Y	Y	Y
TEXCEL TECHNOLOGY PLC	+44(0)1322621700	www.texceltechnology.com	£15.5m	SE	131	7	ISO9001, ISO14001, IPC610 Class 3,	Y	Y	Y	Y	Y	Y
Tioga Limited	01332 360884	www.tioga.co.uk	£16m	Derby	130	6	ISO 9001, ISO 13485, ISO14001, IPC 610, 620, 7711/7721	Y	Y	Y	Y	Y	Y
Wilson Process Systems	01424 722222	www.wps.co.uk	£12m	SE	100	5	ISO9001:2015, IPC-A-610 Class 3	Y	Y	Y	Y	Y	Y

PCB Buyers' Guide

Manufacturer	Telephone	Website	Service Provided (ie Broker, Manufacture &/or Repair)	Location	Approvals	Volume- Small, Medium, Large	Double-sided	Multi-layer 4-10/10-20-20-30	Metal PCBs	Ceramic PCBs	Heavy Copper PCBs	Flexi / Flexi-Rigid	Obsolescence Solutions	Modifications	Prototyping
ABL Circuits Ltd	01462 894312	www.ablcircuits.co.uk	M	SE	ISO9000: 2015	SML	Y	4-10	Y	N/A	N/A	Y	Y	Y	Y
Cambridge Circuit Company Ltd	01223 423100	www.cambridge-circuit.co.uk	M	SE	ISO9001:2015, UL, ISO 14001:2015	SML	Y	4-16	Y	N/A	N/A	Y	Y	Y	Y
DK-Daleba Printed Circuit Boards	01992 510000	www.dk-daleba.co.uk	M	UK, Europe, Asia	ISO 9001:2015, UL, TS16949, JOSCAR	SML	Y	4-58	Y	Y	Y	Y	Y	Y	Y
GSPK Circuits Ltd	+44 (0)1423 798 740	www.gspkcircuits.ltd.uk	M/R	UK, Europe, Asia	IS 9001:2015, IATF 16949:2016, EN (AS) 9100, Joscar	SML	Y	4-34	Y	Y	Y	Y	Y	Y	Y
Stevenage Circuits Ltd	01438 761811	www.stevenagecircuits.co.uk	M/B	UK/China	ISO 9001:2015, EN 9100:2018, EN 9104:2013, UL796, ISO 14001:2015	SML	Y	4-44+	Y	N/A	N/A	F, F/R	Y	Y	Y
Tate Circuit Industries Ltd	01543 622 435	www.tatecircuits.com	M/B	UK/China	ISO 9001:2015, UL	SML	Y	4-20	Y	N/A	N/A	Y	Y	Y	Y

Advert Index

Advert	Page	Advert	Page
Anglia Components Ltd	BC	Lincoln Binns Ltd	34
Best Windings Ltd	49	M-TEK	22
Carlisle IT	11	Mouser Electronics	09
CamdenBoss Ltd	33	Nano Electronic Services Ltd	20
CML Innovative Technologies Ltd	15	Nemco Ltd	19
Corintech	19	Note	26
Cupio	42	ODU Connectors	36
Digi-Key Electronics	FC & IFC	OKW Enclosures Ltd	35
eBOM.com	44 & 45	PEI Genesis	10
ECS (The Electronic Component Show)	41	Phoenix Systems	17
electronica 2022	39	Rebound Electronics	11
Electronic Technicians Ltd	23	Rochester Electronics Ltd	29
Esprit Electronics Ltd	23	Schurter Electronic Components	40
FermionX Ltd	16	Sellectronics	24
Fusion Worldwide	08	Southern Electronics Show 2023	43
Galco Industrial Electronics	IBC	Tate Circuits Industries Ltd	20
Hammond	32	Tioga Ltd	25
Hirose Electric Europe B.V	13	Trojan Electronics Ltd	18
Hitaltech UK Ltd	13	Trusted Parts (ECIA)	05 & 31
Jaltek	40	Vision Engineering Ltd	21
Kemtron	37		



MILLIONS OF PRODUCTS. THOUSANDS OF APPLICATIONS. YOUR GLOBAL RESOURCE.

Your Source for Industrial Electronics & Automation

Finding the right part for the job has never been easier. Galco carries more than 3 million electrical products, with free technical support to help you find the part you need and get it quickly.

WORLDWIDE SHIPPING

GALCO Galco.com • +1 888-851-0301

ANALOG DEVICES

AHEAD OF WHAT'S POSSIBLE™

Empowering Design Innovation

Building a smarter future by bridging the physical and digital world with breakthrough innovation.

- A/D Converters
- D/A Converters
- Amplifiers
- Switches & Multiplexers
- Power Management
- Optical Comms & Sensing
- Processors & Microcontrollers
- RF & Microwave
- Sensors & MEMS
- Interface & Isolation
- Clock & Timing
- Industrial Ethernet
- Embedded Security

View products with your Smartphone

Discover our extensive portfolio

anglia Live

www.anglia-live.com