

Energy Saving is a hot topic for any business in the UK right now.

So many of our customers are experiencing Energy Stress at the moment. But don't worry, we have got your back - and that starts with our Energy Saving Update. It includes;

Mitsubishi a.c. Inverters

Electric motors consume a huge amount of electricity over their lifetime. Using more energy efficient motors can obviously help, but where motors don't need to be run at full speed all the time, a Mitsubishi a.c. Inverter can offer increased energy and cost savings.

See page 6.

IAI Electrical Actuators

On average, generating compressed air in an industrial facility accounts for between 10% -30% of the total energy bill.

Installing energy efficient electrical actuators instead of traditional pneumatic cylinders can reduce energy use by 90% - providing huge energy and cost savings.

See pages 3 and 4.

Keep Your Cool with Lutze Airstream

Increased temperatures inside your control panels can cause problems for crucial components and dramatically reduce their lifespan.

Climate control is a great idea, but simply wiring your panels in a different way can help to reduce temperatures - without relying on additional cooling. Take a look at Lutze Airstream on page 7.

Energy Saving update

Latest Developments from LC Automation Ltd

Are you feeling
the squeeze?



It's time to
have a serious talk
about Energy Stress...

Huge increases in energy costs, the ongoing drive for better efficiency, ambitious government targets for carbon emissions, supply chain pressure from your customers. There are so many reasons why UK businesses are suffering from Energy Stress.

The drive for energy efficiency is nothing new, but we can't remember a time when there has been so much pressure on UK business to up their game. You are not alone. Along with our supply partners, we are here to help relieve your energy stress.

How Can We Help?

- Unbiased advice and support from our expert engineers
- No-obligation site visits
- Multi-vendor solutions so you get the best-fit solution
- We look at a range of issues to see how they impact your business

Get in Touch

If you're feeling the squeeze, you are not on your own. Get in touch and discuss your problems with us. Maybe we can help to relieve your stress?

Call Blackburn On
 **01254 685900**

Call Chippenham On
 **01249 460099**



LC Automation
control & safety

www.lcautomation.com

Will Compressed Air Stop You Hitting Your Energy Saving Targets?

Air is free – but compressed air is not. Use alternatives where possible. Source: The Carbon Trust

The UK Government has ambitious targets for reducing emissions, pledging to hit Net-Zero by 2050. The knock-on effect is huge, with major UK businesses actively driving their supply chains to reduce energy usage and waste... but will compressed air stop you hitting your energy saving targets?

According to The Carbon Trust, compressed air systems account for 10% of all Industrial energy use, but the efficiency of compressed air systems is 'often poor' due to leaks, inappropriate use, ad hoc system expansion and poor control. There is massive potential for energy savings in the UK alone.

Sustainable Development Goals

Ambitious government targets are encouraging UK businesses to focus on their 'Green Credentials'. Many retailers are already pushing their supply chains to reduce energy use and that pressure is only going to increase in the future.

Add to this, the ongoing drive for greater efficiency and lower costs, and pneumatic cylinders will become less and less attractive to UK industry.

Sustainable Reduction of Your Energy Consumption

The efficient use of energy should be the goal for sustainable development in any manufacturing company.

This involves their future development and measures to effectively counter the growing cost pressure.

The key to reducing production costs lies in eliminating power losses in energy-intensive factory automation, which is why more and more companies are opting for automation without compressed air and choosing to use electrical actuators.



Depending on your manufacturing process, it might not be practical to replace a single pneumatic cylinder with an electrical one.

But if you are installing a new stand-alone machine or adding a whole new production line, it's time to look at IAI RoboCylinder.

Reduce Your Annual Electricity Bill and CO² Emissions - Example

Annual electricity bill/CO² emissions on a production line using 300 cylinders

	Electric bill per year <small>(Electric power unit price: 17.2p /kWh)</small>	CO ₂ emissions per year <small>(Emission coefficient: 0.000472t-CO₂)</small>
Air cylinder	£20,124	55.2 t-CO₂
	<small>Power consumption: 390kWh/year x 17.2p /year x 300 pcs</small>	<small>Power consumption: 390kWh/year x 0.000472 x 300 pcs</small>
EleCylinder	£3,998	11.0 t-CO₂
	<small>Power consumption: 77.5kWh/year x 17.2p /year x 300 pcs</small>	<small>Power consumption: 77.5kWh/year x 0.15€/year x 300 pcs</small>
Annual reduction	£16,126/year	44.2 t-CO₂

*Based on IAI research.

What Difference Can it Make?

The difference in power consumption of an electric cylinder and a pneumatic alternative depends on the frequency of operation. Higher frequency gives more impressive energy-savings.

If both cylinders work at 10 cycles per minute, a RoboCylinder uses 1/3rd of the energy of a pneumatic cylinder.

But if both cylinders work at 30 cycles per minute, this difference becomes clearer because the IAI RoboCylinder only uses 1/10th of the energy of a pneumatic cylinder!

Think about the production cycles in your business. The harder your cylinders are working, the bigger the cost savings you could make from using IAI electrical actuators.

You may be satisfied that your existing compressed air system fits your needs, but what about the future?

Expanding a system to accommodate a new machine or installing an additional compressor to power a new production line could really affect your efficiency. That is the ideal time to look at pneumatic-free technology.

If you are currently using pneumatic actuators in an assembly or handling application, IAI actuators can provide a better, more energy efficient solution for linear, rotary and gripping movements.

Why don't you call our IAI experts on 01254 685900 and see what electrical actuators can offer your business? It could be the best call you ever make!

Call LC Automation Blackburn on 01254



Think About the Ongoing Cost of Your Pneumatic Cylinders

The main argument for pneumatic actuators is a lower initial investment. That is true, but it is also true that pneumatic systems are complicated, unreliable and inherently inefficient. It is possible to reduce high losses during the generation and distribution of compressed air using intensive optimisation measures, but the technological limits are quickly reached. Various studies show electrical actuators are preferable to the optimisation of compressed air systems, both in terms of the economic and the ecological savings in energy consumption. In many cases, savings of up to 90% have been achieved!

Improved Productivity

Pneumatic cylinders can't operate at high velocity due to the impact at the stroke ends. IAI electric actuators allow individual adjustment of acceleration, velocity and deceleration (AVD) with percentage input for smooth starting/ stopping at high velocity - reducing cycle time and increasing productivity.

Looking for More Information? We Can Help With That...

If you're thinking about energy saving or expanding your factory production, it's time to have a serious conversation about Electrical Actuators and Cylinders.

As the UK's only IAI supplier, no one understands more about reducing energy costs by specifying, installing and using the right IAI Electrical Actuators.

Our engineers can discuss your application, give you expert advice and get your project off the ground.

Give our experts a call today on 01254 685900 and let us start to make your production processes more energy efficient.

“But I’m Used to Pneumatics... Won’t it be Difficult to Switch to Electrical Actuators?”

This is a valid concern we often hear from Mechanical Engineers. **Switching to a different technology can be daunting - but it really doesn't need to be.**

For example, take a look at the IAI EleCylinder range, the closest alternative to traditional pneumatic cylinders.

They use the same 24v d.c. control signals as the solenoid valves in your air circuit. The position controller is built-in, using encoder feedback so there is no need for magnetic reed switch inputs.

The controller accepts external Move Forward and Move Backward command signals and issues confirmation signal outputs for Forward Complete and Backwards Complete, making the interface of the EleCylinder to an existing air solenoid control system easy.

You Get Faster Changeovers...

Are you changing production and need to change the positions of the actuator? No problem, simply change the start and end points and it's done.

Much Better Control...

Acceleration, Velocity and Deceleration (AVD) can be easily set to minimise cycle times while ensuring product quality and efficiency is maximised. Again, this is done by simply changing the three variables using PC or teaching pendant – in less than 5 minutes!



... and No Ongoing Adjustment.

Unlike air cylinders, IAI EleCylinder provides accurate positioning and excellent repeatability which does not vary over time.

You probably know air cylinders need regular adjustment to ensure consistent performance. That might only take a few minutes a day, but even 12 minutes each day adds up to an hour over a 5-day week... or 50 hours of lost production every year.



Scan Here to see why EleCylinder is a better alternative to pneumatics

Programming Doesn't Get Any Easier than this!



Meet the touch-panel teaching pendant, the easy way to program IAI EleCylinder - with no cable required!

Get closer to the actual unit so you can watch trial operations and make all the fine position adjustments you need.

685900 or Chippenham on 01249 460099

Monitoring and Communication - a

The saying goes that you cannot reduce what you cannot measure, so energy use. We have some great solutions to help you measure, m

Measure the Energy Consumption of Your Production Systems in Detail

Industrial energy networks can be very complex. Weidmuller energy meters make it possible to break them down into manageable areas, easily analysing consumption and other energy parameters.

If you want to protect energy sources, use energy more efficiently and improve the availability of energy networks, Weidmuller energy meters can do much more than measure consumption of electrical energy. They can also determine basic parameters on energy quality or analyse the current from all conductors individually.

This gives you a quick overview of the electrical energy in your production facility and applies to efficient use, quality, stability and availability.

But, not all measuring devices are suitable for all applications. With Weidmuller you can select the perfect measuring device for each of your system components from their comprehensive portfolio of modular devices.

Key data at a glance

For devices with integrated display, important measurement data such as voltage, current, power and energy can be easily read off.

Excellent scalability

The comprehensive range of energy measuring devices means you can break down the energy networks for your production sites as accurately as you wish and measure them in detail.



Weidmuller energy meters make energy efficiency transparent

Weidmüller 

Are You Concerned About the Security of Your Data Communication? Here is Tosibox...

People understandably get worried when we talk about data communication. It's a big decision and no-one wants to leave their company data open to attack. That is why you need Tosibox.

Tosibox has been a world-leader in secure online communication for years, in fact, their engineers help to create regulations for online security. With end-to-end, fully encrypted solutions, it is easy for you to access your data - without involving your IT department or putting your network at risk.

Too Good to Be True?

It does sound very impressive, but Tosibox can back up their claims with solid evidence, a wide range of case studies and years of experience.

If you are looking for more reassurance, speak to our Technical Support Engineers and get a free demo. They will demonstrate how it works, what it can do and why it is so secure. Give us a call on 01254 685900 today.

TOSIBOX®



Call LC Automation Blackburn on 01254

a Complete Energy Saving Solution

The first stage of a successful Energy Saving project is measuring your energy usage - so let's get started!



Socomec Energy Measurement

To help manage your energy usage, Socomec has a range of Countis and Diris energy meters, that can be mounted on DIN rail or panel front (depending on model).

Socomec has tailored their solutions to provide energy metering, quality monitoring and analysis to meet your industrial requirements, so you can;

- Reduce operating costs
- Reduce production costs
- Optimise maintenance costs
- Improve efficiency

Ethernet Connectivity

Optional communication modules can connect your Socomec energy meter directly to your ethernet network.

Embedded Web Server

Using the ethernet connection, you can also operate and configure your energy meter from any internet enabled device, without specific software.



Red Lion FlexEdge is Your Gateway to Energy Monitoring



Red Lion Controls are experts in communication and monitoring. The FlexEdge series offers industrial data acquisition to simplify and support all your energy monitoring requirements.



What if my data is hard to get to?

You may have equipment in different remote locations, sites with extreme cold/heat or harsh environmental conditions. Don't worry, FlexEdge is a proper industrial unit that has a wide operating temperature range and ATEX certification so it can be installed in more locations. You can also get the data you need, wherever you are, with a choice of Serial, Cellular, USB and Wi-Fi communication sleds.

Future Proof

To help make it future proof, you can easily change the communication sled if your requirements change. In fact, the FlexEdge is modular, so you can start small and add extra capacity and options as your needs grow in the future.

Can I see it?

Of course. We have demo kits, so our Field Sales or Tech Support Engineers can let you see the FlexEdge for yourself. Give us a call to book yours!



What Do You Get?

- Reliable access to all your data
- The flexibility to start small and expand in the future
- Over 300+ Protocols - Connect Virtually Anything, Anywhere
- Advanced Web Server and Virtual HMI for live remote monitoring
- Secured datalogging with large storage and FTP back-up
- Wide Operating Temperature Range
- UL Class 1, Division 2 and ATEX/IECEx Certification



01249 460099 or Chippenham on 01249 460099

The Drive for Greater Efficiency

Forward thinking businesses who are interested in reducing motors energy use can now go further than before, by implementing new tools that enable a.c. inverters (variable speed drives, VSDs) to save even more energy.

Wayne Turtill, Mitsubishi Electric product manager, looks at reducing energy usage with the right a.c. inverter technology.

a.c. inverters have long been used in applications where varying motor output speeds are required, such as fans, pumps and production machines. By controlling voltage and frequency, the key elements of a motor's electricity supply - a.c. inverters precisely adjust speed and torque to deliver the process requirements of the machine or device. Using a.c. inverters to reduce energy use makes a huge difference compared to using dampers and valves or gears to adjust the output speed.

How Much Could I Save?

As an example, we will look at a 22kW motor driving a centrifugal pump, constantly, 24 hours per day, 365 days per year.

We are assuming the pump speed can be reduced without affecting the performance of the water system.

According to the Carbon Trust, with an electricity price of 17.2p/kWh, using an a.c. Inverter to reduce the speed of the pump by 20% will save;

- £15,333 per year
- 85,661 kWh per year
- 36.8 tonnes CO²

OK, but What About the Return on My Investment?

In this example a 22kW Mitsubishi FR-A840 Inverter (£2,859 list price), gives a payback time of just 68 days!

Source; Carbon Trust Motor & Drive Technology information leaflet - ECA764

Moving Beyond the Usual a.c. Inverter Benefits

Installing an a.c. inverter to operate motors is a good starting point, reducing energy consumption and helping to improve the environmental impact of your industrial activities.

Companies often use fan & pump loads to oversize their motors, maybe because the ideal motor size falls between standard frame sizes or specified one frame size up 'just in case'.

Avoiding Motor Oversizing

As a general recommendation, oversizing the fan or pump system and particularly the motor should be avoided. Instead, businesses should select products that meet the necessary specifications without exceeding them, although it's not always easy to do.

While there are situations where it is not possible to avoid oversizing, suitably rated a.c. inverters can still provide the correct level of control & save energy.

In particular, businesses that select a.c. inverters with specific energy reduction capabilities have more to gain. For example, Mitsubishi Electric's a.c. inverters feature Automatic Energy Optimisation. This analyses the output to the motor in terms of voltage and current, to reduce the voltage while maintaining the same operating parameters, i.e. speed. The voltage is reduced until the a.c. inverter detects an increase in the current, then increases the voltage to compensate. Using a PID algorithm without setpoints, allows the system to reach the lowest (and most efficient) voltage possible.

These adjustments are conducted a hundred times per second, during steady state operations as well as acceleration and deceleration to support real-time, continuous voltage control.

Next-level Energy Intelligence

Finally, application-specific functions in next-generation Mitsubishi Electric a.c. inverters can help businesses cut energy consumption even further when applied to certain applications, such as pumps and fans, or conveyors. Using Mitsubishi Electric's E800 range of a.c. inverters, featuring Advanced Magnetic Flux Vector Control to provide optimum dynamic performance. For example, in a conveyor application the a.c. inverter can automatically switch into energy saving mode when the conveyor is not loaded and maintains this efficient state until a load is applied.



This can offer very substantial energy savings compared to more conventional control methods.

Choosing the right equipment for motor-driven applications can deliver significant cost and energy savings, far beyond what you would normally expect for an a.c. inverter application. By installing state-of-the-art equipment and using all the features available, businesses can reap additional efficiency gains while still benefitting from all the flexibility and productivity advantages of a traditional control philosophy.

Call LC Automation Blackburn on 01254

Why Does Heat Build Up in My Control Panel?

Wherever current flows, heat is generated, and hotspots occur in every control cabinet.

The components that are used in control panels are becoming more and more compact, even though their switching capacity is increasing. This also means that the thermal loss rate is higher. Plus heat also builds up in the standard cable ducts.



Thermal imaging shows how heat can build up around control panel components

Hotspots are Created

Standard climate control features in control panels are often not able to dissipate these hotspots and cool air does not get to where it is needed.

Why is Heat Such a Problem?

According to manufacturer's data, the typical life expectancy of an electrolytic capacitor (an integral part of all control equipment), is around 10 years at 40°C. But if the temperature increases to 60°C (not uncommon within modern control panels) and that life expectancy reduces dramatically to 30 months!

The consequences of ignoring excess heat in your panels could result in costly component failures and unnecessary machine downtime.



Control Panel Cooling with Lutze AirSTREAM

When it comes to energy efficient temperature control, there is one factor that is often overlooked - how you actually wire the panel!

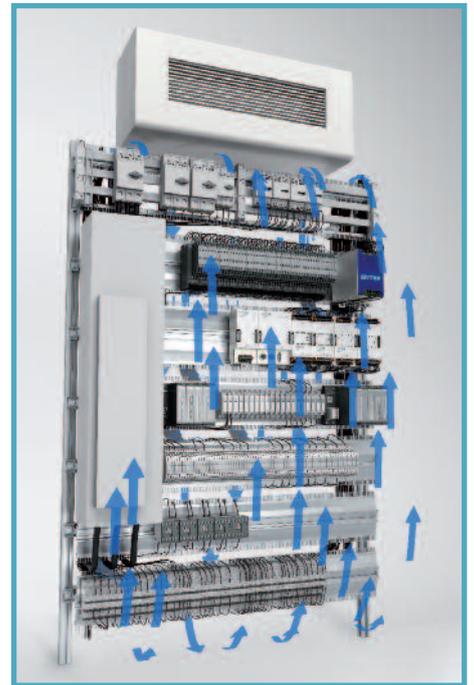
Lutze AirSTREAM is a revolutionary wiring system that provides a more even climate in your control panel.



Lutze AirStream reduces hotspots to give a more even temperature in your panel



Scan Here to see how easy it is to wire your Lutze AirStream Panel



Minimising and balancing heat levels in the control panel reduces the need for external cooling, producing energy savings of up to 23% (Source; The Green Carbody Alliance).

Get a More Even Climate in Your Control Panel with AirBLOWER

Lutze AirBLOWER eliminates the air layers in the control cabinet to create an even climate.

A control cabinet equipped with an AirSTREAM frame cools down more efficiently. Practical tests have demonstrated impressive results. The AirBLOWER makes it possible to reduce the mean temperature in the control cabinet by up to 10 degrees Kelvin.

- Works with the AirStream frame
- Uses less energy than active cooling in your control panel
- Easy to install and use
- Activated only when it's needed



It's not only good for the climate inside the control cabinet

Operating Lutze AirBLOWER uses much less energy than active cooling in your control panel. AirBLOWER doesn't need to be operated constantly, it can be automatically activated only when it is needed.

685900 or Chippenham on 01249 460099

Rittal Blue e+ Cooling Units - The Ultimate in Efficiency

Rittal are a world-leading manufacturer of Industrial & IT Enclosures and their Blue e+ cooling units are widely acknowledged as the most efficient units on the market!

Independent tests show the Rittal Blue e+ is 75% more energy efficient than previous cooling solutions with an output range between 1.6kW and 6kW. "These smaller units are an important addition to the Blue e+ range and are designed to meet a growing need for compact cooling units for efficient enclosure climate control," explains Karl Lycett, Rittal's Product Manager for Climate Control.

Patented Hybrid Technology

Rittal Blue e+ cooling units feature inbuilt, innovative and patented hybrid technology. This combines an inverter driven cooling circuit with an independent heat pipe that provides passive cooling to help deliver exceptionally high efficiency ratings.

Precise, Demand Based Cooling

Frequency converters precisely adjust the speed of the DC motors controlling the fans & compressor which allows the cooling output to be tailored to the current environmental requirements.

This 'demand based' cooling has a significant reduction in energy consumption compared to other conventional solutions.



Minimise Stress

Precise, demand based cooling ensures minimal thermal stress for components within your enclosure, eliminating the temperature fluctuations you get with conventional two-point control systems.

This not only increases the service life of the cooling units themselves, but also extends the life of the components in your control panel, reducing costs and giving you higher process reliability.



Efficiency

Speed-regulated components and heat pipe technology give 75% savings!

Versatility

Suitable for international use due to its unique multi-voltage capability.

Reliability

Longer service life due to component-friendly cooling.

User-friendly

Intuitive operation with touch display and intelligent interfaces

Next Generation Cooling Technology Rises to the Challenge

The UK Food & Beverage sector has rapidly adjusted to consumer behaviour, manufacturing round-the-clock to support our modern lifestyles. It's having a major impact on factory infrastructure.

Allied Bakeries is no different. In 2019, Rittal UK was approached by Rob Shaw, Site Controls Engineer for Allied Bakeries' Walthamstow, which produces around 1.5 million loaves per week.

Continuous Improvement

The company was performing a continuous improvement appraisal on the plant tunnel oven, which can bake 10,000 loaves per hour.

Cooling the electrical equipment required to run an industrial production line is vital to ensure its continued operation. Allied Bakeries already protected its equipment with Rittal's

'Blue e' cooling units, but were keen to explore if an upgrade would reduce the carbon footprint of the site & maintain the high level of protection required by the oven's control equipment.

An Innovative Solution

Based on their initial consultation and after further discussions with Allied Bakeries Engineering Team, Rittal confirmed 'Blue e+' Cooling Units would fit the criteria.

These new generation cooling units use state-of-the-art technology, to deliver industry-leading climate control within a factory environment and an average 75% lower energy consumption than previous generation 'Blue e' units.

This is a quantum leap forward for cooling systems and is a major incentive for food and beverage companies who

want to minimise steep rises in energy prices & reduce their carbon footprint.



Industry 4.0

In addition, Blue e+ remote monitoring capability unlocks the potential of Industry 4.0 (with IoT adapter).

Allied Bakeries' Engineers now have constant access to the cooling system's performance data and early warning of any issues before they cause electrical equipment failure and downtime.

Call Blackburn on 01254 685900 or Chippenham on 01249 460099