

Advanced Keyboard

Simple, cost-effective, easy-to-deploy solution to help achieve Net-Zero carbon goals

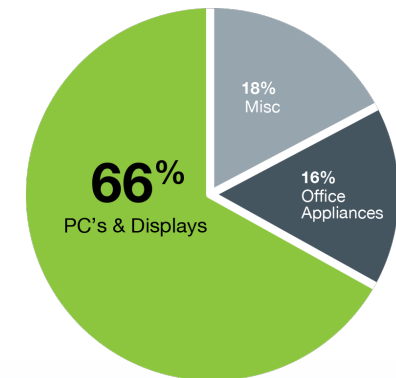
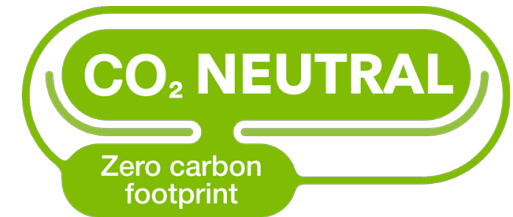


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Net-Zero Carbon

- Many organizations have ambitious Net-Zero carbon commitments.
- Legislation + stakeholder demands require carbon reduction plans are implemented.
- After lighting and HVAC upgrades are completed, organizations are struggling to find what's next? PC's are the largest opportunity for energy savings for many organizations accounting for ~66% of all plug load energy use in offices.
- Advanced Keyboards are a simple, cost-effective, easy-to-deploy + very scalable solution that can reduce energy consumption of PC's by 40-70% with an average carbon reduction of ~67 kg CO₂e per year.



The Climate Emergency - The Defining Challenge Of Our Time

- Organizations understand the enormous challenge that the climate emergency presents and the urgent need to reduce CO2 emissions to play their part and meet the expectations of their stakeholders.
- Many organizations have made pledges to reduce their carbon emissions to Net-Zero through a combination of energy efficiency, renewables and offsetting.
- Energy efficiency is one of the simplest, quickest, low risk and most cost effective solutions to implement as part of a comprehensive Net-Zero strategy.
- “This may sound too good to be true, but the world has a renewable energy resource that is perfectly clean, surprisingly abundant, and immediately available. It has astounding potential to reduce the carbon emissions that threaten our planet, the dependence on foreign oil that threatens our security and the energy costs that threaten our wallets. This miracle goes by the name energy efficiency.”
- “Energy efficiency is not just the low hanging fruit, it is the fruit that’s lying on the ground”, Steven Chu, former US Energy Secretary.
- Many organizations have already done the obvious upgrades to lighting and HVAC systems, many are now wondering “We still have a long way to go, what else can we do to further reduce their carbon emissions and achieve our Net-Zero targets?”



**TOGETHER
FOR OUR
PLANET**



PC Energy Consumption

- PC's often left on for extended periods even though inactive 80% of the time → resulting in wasted energy and posing a security risk.
- Users often confused by the power saving settings or they adjust them to needlessly long times.
- Multiple displays commonly used → increases energy consumption significantly. Larger, higher resolution displays are more prevalent. Average lifespan of a display is ~ 8 years.





What is an Advanced Keyboard?

- USB wired keyboard.
- Radar sensor detects user absence in seconds + automatically puts PC to sleep to save energy.
- Enhances PC security → quickly locks if user is absent.
- Windows® + Linux® + Mac® compatible.





What does the Advanced Keyboard do?

- Keyboard + Saves Energy + Enhances Security
- Mouse + keyboard input is a sub-optimal method to determine user absence. PC's remain on unnecessarily → wasting energy + remain vulnerable to unauthorized access.
- As soon as absence is detected → PC is put to sleep (and locked) in as little as 30 seconds.
- Wired USB connection avoids use of batteries.



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Installation

- Install in <2 minutes.
- No software installation required + no IT skills needed.
- Select 2 dip switches:
 - Operating system (Windows default)
 - Countdown timer duration 30 secs / 3 mins / 6 mins (30 secs default)





Radar Sensing Technology

- Highly-sensitive radar sensor detects user absence (immune to light, heat + noise).
- Detects in seconds if a user is absent from the PC.
- Detection field:
 - Horizontal 3.93" - 49.21" / 0.10m - 1.25m.
 - Vertical 3.93" - 49.21" / 0.10m - 1.25m
- Certified to all international approvals.



FC IC CE



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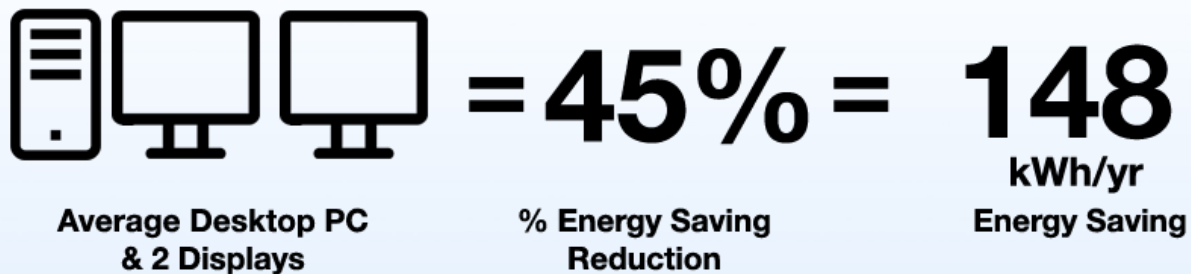
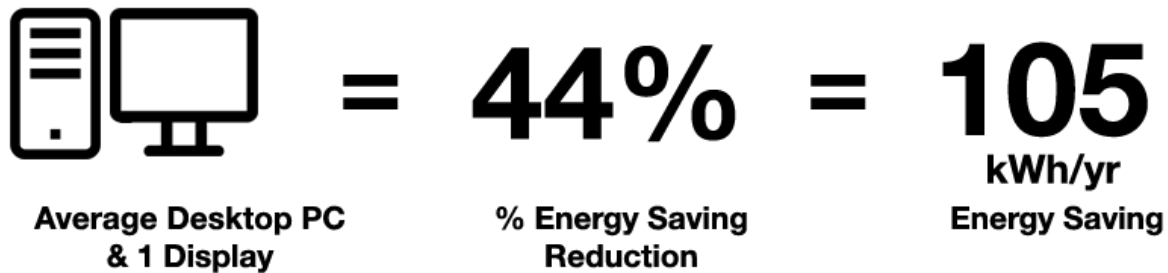
Complies with
IMDA Standards
DA10978





Average kWh Energy Saving / Year

- Science based results based on 2 independent studies. Sample size of >400,000 PC's.
- ROI typically < 3 years.



Average Greenhouse Gas / Year Abatement

USA



= 48 kg/CO₂e



= 67 kg/CO₂e

- Example: US organization with 25,000 users using a desktop PC with 2 external displays can claim annual carbon abatement of 1,675,000 kg of carbon per year.



Best suited to organizations with...

- Large numbers of PC's.
- External displays are used (greater savings).
- Organizations looking to achieve to Net- Zero commitments and where Sustainability Reporting are key objectives.
- Organizations looking for a cost effective, easy to install solution that is scalable that does not disrupt and inconvenience staff and delivers substantial carbon abatement.





FAQ

- **Can I use the Advanced Keyboard with a notebook and external display?**
 - *Yes, it works with Desktop and Notebook PC's where an external keyboard is used.*
- **What drives energy savings?**
 - *PC hardware + number and size of external displays + energy saving settings + user behavior. Multiple external displays and users disabling energy settings drive energy waste most aggressively.*
- **Does the Advanced Keyboard replace or override the energy settings already on my PC?**
 - *No, it does not replace but it can sense absence much faster and can put the PC to sleep faster.*
- **Can the Advanced Keyboard be used in conjunction with network management software?**
 - *Yes, it does not interfere with network management software.*
- **Is there any software to install on the PC to make the Advanced Keyboard work?**
 - *No. The Advanced keyboard uses standard USB libraries. You do not have to install any software or do any type of configuration on the PC to make the keyboard work. * depending on the operating system you have to click on a checkbox that pops up automatically when a new keyboard is detected.*
- **Will then sensor detect other people to the side or behind me in a high density work environment?**
 - *No. The detection field is limited horizontally and in terms of range. Users at a nearby desk will not trigger the sensor.*

References

- [1] Sutton-Parker, J. (2018) 'Can meaningful measurement of end user computing carbon footprint drive human behavioural changes to abate GHG emissions?'. Warwick: University of Warwick
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- [3] Sutton-Parker, J. (2021), 'Determining commuting greenhouse gas emissions abatement achieved by information technology enabled remote working.' Amsterdam, the Netherlands: Science Direct, Elsevier B.V.
- [4] Sutton-Parker, J. (2015), 'Corporate and Social Responsibility (CSR) as a driver for the adoption of cloud computing'. Ambleside, Cumbria: IFLAS, University of Cumbria. Amsterdam: Elsevier Procedia Computer Science
- [5] Sutton-Parker, J. (2022), 'Determining GHG emissions abatement using displacement strategies based upon alternative computer operating systems'. Amsterdam, the Netherlands: Science Direct, Elsevier B.V.