

Horticulture

Growing economically, profitably and environmentally sustainable crops

Intelligent Grid is a highly flexible and reconfigurable platform that unifies lighting, power and communications. This enables precise and efficient calibration of greenhouses, polytunnels and indoor farming systems to yield high-quality plants that are competitive and with minimum impact on the environment.

With many countries importing a high proportion of their food, global supply chains are unsustainable in a world faced with pandemics, climate change and volatile market forces. The UK, for example, consumes over 500,000 tonnes of tomatoes every year, with 80 per cent imported from overseas.[†]

Construction of industrial-scale greenhouses can address this challenge since productivity is ten times the yield of an open field with a tenth of the water consumption*. However, commercial greenhouses have typically high-power requirements. Operators are witnessing increasing demand for efficient tunable lighting, automation and productivity. For example, reducing the crop cycle by one third by lengthening daylight hours.

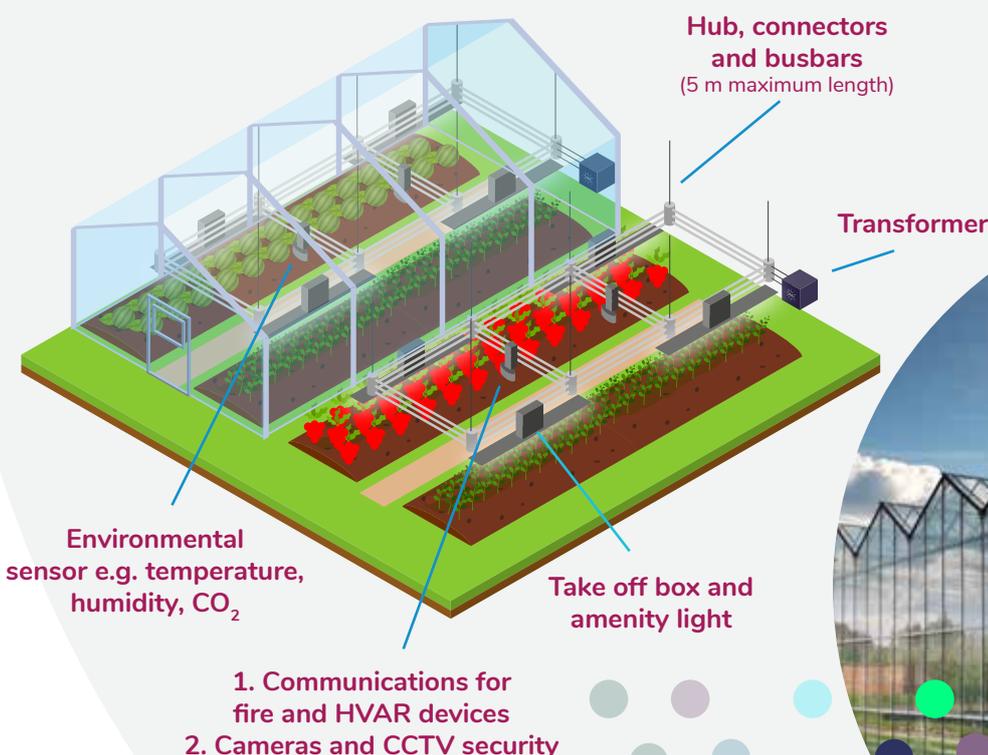
Intelligent Grid's LED lighting system reduces energy consumption while simultaneously increasing crop productivity: yield, consistency and quality. The integrated IoT sensors can reduce labour requirements, manage safety risks and much more.

Using the Intelligent Grid, horticulturists can create smart growing environments with precisely tuned and timed, growth-stage appropriate lighting either comprehensively or with mixed cycles.

Shelf-life, nutritional quality and flavour can be optimised further by using UV LEDs. IoT-enabled sensors can be incorporated into the Intelligent Grid system to reduce or turn off UV levels when a person enters the growing area.

In addition, IoT sensors can automatically control blinds, monitor CO₂ levels and manage daylight harvesting, for example. Sensors, cameras and devices connect to the Cloud for control, monitoring and data analysis. Turn your greenhouse into a controlled environment that can be easily controlled from your own mobile phone.

Intelligent Grid ensures you maximise your growing hours, through consistent quality of light quality where you need it



Sources

[†]Ben Alexander, Senior Development Manager, Low Carbon Farming
<https://youtu.be/BCzsMyU8KDK>

*The Greenhouse Powered By Sewage, BBC Click <https://youtu.be/BCzsMyU8KDK>



Environmental features and benefits

- Deliver enhanced health and safety with sensors for monitoring and controlling CO₂, UV lights and fire, for example.
- Future-proof sites to support the next generation of devices and innovations in IoT and artificial intelligence.
- Transformer, hubs, connectors and busbars can be easily moved and reconfigured no matter how many times devices are upgraded.
- Configure rules-based software to control lights and other building equipment based on sensor data.

Improve energy savings of up to 40 per cent versus competitive LED systems and 70 per cent versus fluorescent lighting.



Productivity features and benefits

- Spectral tuning capabilities ensure maximum light efficiency is achieved, giving plants light as and when they need it and enabling precision control of the crop to enhance flavour, appearance and nutrition.
- Adaptable site layouts for optimum seasonal conditions and crop type without high fixed costs thanks to Intelligent Grid's flexible, modular design.
- Light spectrum and wavelength are easily adjustable according to growth stage.
- Luminaires and devices can be moved quickly and efficiently without the need for external contractors.
- Optimally deliver light from luminaires positioned near to the plants.
- Uniform lighting output reduces shadows for consistent growth.



Operational features and benefits

- Reduce operational costs while still providing a productive environment for a monoculture or polyculture of crops all year round.
- Replace High Pressure Sodium lighting for up to 90 per cent power saving. Reduce carbon footprint with energy savings of up to 40 per cent versus competitor LEDs and 70 per cent versus fluorescent lighting.
- Low-voltage power distribution is safer and means lower installation and maintenance costs.
- Dimming without loss of electrical efficiency for lower power costs.
- Daylight harvesting and mixed lighting zones for optimum lighting conditions and smarter power consumption.



Reduce operational costs with Intelligent Grid

Intelligent Grid's ability to deliver strong cost savings on a total cost of ownership basis, combined with communications functionality, is enabled by IGS' proprietary and patented use of three-phase power.



Efficient installation, reconfiguration and maintenance

Intelligent Grid's components are modular and scalable, enabling simple and efficient removal and repositioning, requiring just a screwdriver.

- Zero-flicker LEDs for optimum performance.
- Dim smoothly to zero for maximum control.
- Non-technical personnel can maintain and reconfigure Intelligent Grid safely and efficiently.

About IGS and Intelligent Grid

IGS is a technology company which delivers platforms that create ideal conditions for life, based upon a culture of continuous innovation, brilliant, simple design and a refusal to accept conventional thinking.

Founded in 2013, IGS originally brought together decades of farming and engineering experience to create an agritech business with a vision to revolutionise the indoor growing market. IGS itself will not grow crops commercially and never will. The business enables growers and farms to do so by providing the infrastructure and knowledge.

Our commitment to innovation has continued apace and we have evolved the applications of our technology beyond agriculture to create solutions for a wide variety of indoor environments which enhance life for people and plants: the Intelligent Grid.