

SmartSense™ Trolley



The SmartSense™ trolley is a revolutionary asset for both new and experienced hatchery managers, ensuring peace of mind in day-to-day hatchery operation.

The intelligent trolley uses a constant stream of data, which provides information on embryo development and allows the system to adapt to changing incubation demands. This results in ongoing optimization of the incubation process to maximise the number of top-quality chicks.

It comes with eggshell temperature modules as standard and can be extended with egg-weighing and heartbeat modules (both available soon).

The SmartSense™ trolley is used like any normal setter trolley and needs no adaptation to existing hatchery automation. The trolley can be positioned and connected inside each section of the SmartSense™ setter without replacing hatching eggs or trays by sensors.





SmartSense™ uses a next generation series of intelligent, high-accuracy sensors for both adaptive incubator control and predictive process information.



Eggshell temperature module

With multiple eggshell temperature sensors at three different trolley levels per trolley, SmartSense™ uses a defined number of measurement points for both adaptive machine control and predictive process information.

The resulting data is used for automatic, adaptive temperature control – based on actual embryo needs, rather than the conventional incubation programs alone.

The eggshell temperature module also allows for adaptive RPM control. Instead of ventilator speed reduction at fixed time intervals, the machine can continuously adapt the RPM to actual eggshell temperatures. This results in optimal energy use, whilst maintaining a constant temperature distribution in each section of the incubator.

To achieve a uniform incubation start for each embryo, eggshell temperature information is also used for adaptive pre-heating. Once placed in the setter, hatching eggs must be heated quickly and evenly to achieve consistently high levels of day-old chick uniformity.

SmartSense™ enables the full programming of pre-heating time and automatically adapts the required heating power to ensure the synchronised start of each incubation cycle.

Due to the large number of eggs measured, the SmartSense™ trolley can reliably validate hatchability forecasts days before 18-day candling. The SmartSense™ trolley is therefore a valuable planning tool for day-to-day hatchery operations.



Egg weighing module

The SmartSense™ trolley weighing module measures the average weight of all eggs in a trolley. By setting the desired weight loss objective, humidity levels are automatically controlled to ensure the required weight loss pattern over time. This ensures a consistent weight-loss profile for each batch of eggs and creates a proper air chamber volume.



Heartbeat module

Royal Pas Reform, the first incubator manufacturer to use heartbeat sensing in the setter, is now stepping up to the next level of incubation refinement. By continuously measuring the average heartbeat of a large batch of eggs, the SmartSense™ trolley can provide valuable information on actual embryo development.

Heartbeat information is used for displaying and logging information on embryo welfare, registering heartbeat fluctuations in individual embryos based on environmental changes like temperature, CO₂, humidity, light, sound, and much more.

In the future, this module may also provide valuable process information to support managers in day-to-day hatchery planning – such as best timing for in-ovo vaccination and expected hatch peak prediction.