

Industry Application Article



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Using Advanced Temperature Sensors to Reduce the Workload of NHS Staff: Part 2



FilesThruTheAir™ temperature sensors can automatically collect and log pharmaceutical temperature data. This can release medical staff from having to carry out manual temperature checks, allowing them to undertake other critical tasks.

Public Health England have set out the Green Book as the industry guidelines for procedures dealing with medical vaccines¹. In particular, Part 1: Chapter 3 of this document discusses the guidelines for the storage, distribution and disposal of vaccines².

This outlines:

- Vaccines should be stored at temperatures in accordance with the manufacturer's summary of product characteristics – usually between +2°C and +8°C, and protected from light.
- Opening of the refrigerator door should be kept to a minimum. As a result, the fridge temperature gauge should be clearly visible without having to open the fridge door.
- A minimum-maximum thermometer should be used, independent of mains power, so that temperature can still be recorded in the event of power loss.
- Refrigerator temperature must be monitored and recorded at least once each working day and documented on a chart for recording temperatures.
- Temperature records should be readily available and retained for at least one year, and cover the full storage history of any vaccines contained in the fridge.

Currently, a wide range of facilities rely on manual temperature checks carried out by staff in order to adhere to these procedures³. Not only is this laborious and time-consuming for medical staff, but it can also be unreliable and easily missed. As a result, automation is the ideal solution for most businesses and organisations in the healthcare sector.

"More sophisticated temperature-recording devices are now available, including alarmed digital minimum-maximum thermometers and data loggers." - Public Health England²



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The Solution: EL-WiFi-VAC

[EL-WiFi-VAC](#) is an advanced, Wi-Fi connected temperature data logger, specifically designed for vaccine monitoring; with a glycol-buffered bottle probe to accurately replicate the internal temperature of a vaccine, and supplied with a UKAS traceable calibration certificate.

EL-WiFi-VAC will measure and log temperatures between -40 and +60°C, uploading this data to the [EasyLog Cloud](#); advanced and user-friendly data management software that enables the user to view, analyse and report data, 24/7, from anywhere in the world (via internet browser or mobile app).

The EL-WiFi-VAC has a simple setup process which can be carried out using free PC software or the free EasyLog Cloud mobile app. The user can connect their device to any Wi-Fi network, name the device, set custom sample and transmission rates, and set custom alert limits that trigger a visual alarm status as well as email notifications to addresses of the user's choice.

The device body can be positioned on the outside of a pharmaceutical fridge using the bracket included, and the probe neatly routed into the fridge using our probe installation pack (coming soon for 2020), positioning the glycol bottle probe in the same place as you would normally expect to position your vaccines. This will ensure that you are able to read the live/minimum-maximum fridge temperature on the device's LCD screen without having to open the fridge door (as advised in the Green Book).

Once each device is set up, medical staff will be able to view and manage any number of devices across multiple locations, all via the EasyLog Cloud. An organisation such as an NHS Trust, which is likely to span multiple locations, can add various users to their account with different permissions. For example, you could set up your account so that the pharmacy manager at each of multiple hospitals has management permissions only for the devices being used at their location. This means that, at a top level you can have easy access to data from a wide range of facilities, while your individual devices can be locally managed by the teams responsible for each vaccine environment and best-placed to act quickly if any issues arise.

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The Outcome: Reduced stress for medical staff

Using EL-WiFi-VAC, temperature data for all vaccines can be collected automatically. Through setting low and high alert limits, the appropriate staff can receive a prompt email notification if temperature breaches the conditions set out in a vaccine manufacturer's summary of product characteristics. This can prevent medical facilities from using unsafe vaccines, and possibly even allow them to react quickly preventing valuable vaccines from having to be wasted (depending on the specific advice put forward in the manufacturer's summary of product characteristics⁴).

Each device can automatically generate an 'Event Log' including details of any temperature alarms, power loss, probe disconnections, and issues with Wi-Fi signal. Staff can then leave comments on these events, documenting what actions were taken.

The devices LCD screen can provide staff with further peace of mind: a quick glance at the minimum-maximum readings on the screen will confirm that all vaccines have maintained a safe temperature and are safe to use. This also safeguards against any Wi-Fi failures as staff can temporarily revert to manual temperature checks until Wi-Fi signal is resumed. The device will then upload all data readings (up to 250'000 readings) collected during the Wi-Fi downtime to the EasyLog Cloud so that you still have a complete set of data.

Your data is stored on the cloud for a minimum of a year (longer options are available with different cloud subscriptions), meaning you will always have historical data to evidence the storage conditions of your vaccines..

To expand your monitoring throughout the vaccine cold chain, take a look at FilesThruTheAir's alternative [vaccine data loggers](#), suitable for different stages of the cold chain such as transport (online and offline product options available).

If you are considering a large-scale installation project contact our team on +44 (0)1425 651111 to discuss potential discounts and additional technical support throughout installation. We may even be able to discuss product customisations or integration into your current systems using our API.



¹Public Health England (2014) Collection: Immunisation against infectious disease. Available at: <https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book#part-1:-principles-practices-and-procedures> (accessed: 25/03/2020).

²Public Health England (2013) The Green Book Chapter 3. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/223753/Green_Book_Chapter_3_v3_0W.pdf (accessed: 25/03/2020).

³Southern Health NHS Foundation Trust (2019) Temperature Management of Medicines: Storage and Transport. Available at: <https://www.southernhealth.nhs.uk/resources/assets/attachment/full/0/42469.pdf> (accessed: 25/03/2020).

⁴Public Health England (2020) Vaccine Incident Guidance. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/859773/PHE_vaccine_incident_guidance_January_2020.pdf (accessed: 26/03/2020).

