

Digital calibration certificate

User guide

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Svend Ole Hansen ApS and SOH Wind Engineering LCC has implemented a digital version of the calibration certificate for anemometer calibrations. The digital certificate follows the standard data model developed as part of the IEA Wind Task 43 - Digital WRA Data Standard, see [1].

1 Purpose

The purpose of the digital certificate is to enable an automatized transfer of information from the certificate to relevant components or databases, e.g. data loggers. This reduces the required work of manual transcription and the risk of errors, and has additional potential benefits like reduced reporting requirements and standardized data structures and naming conventions.

2 Getting the digital certificate

The digital calibration certificate is a JSON-file. As of October 2022, the digital certificate JSON-file has been embedded in our standard PDF certificates, and can be extracted e.g. using Adobe Acrobat Reader. Open the PDF, click Attachments, right-click the listed file (ends with .json) and select "Save Attachment...", see Figure 1.

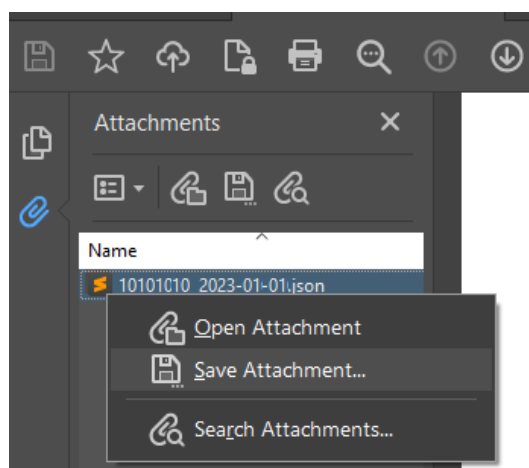


Figure 1. Extracting the JSON-file from the certificate PDF using Adobe Acrobat Reader.

For certificates issued earlier than October 2022, the digital certificate can in most cases be forwarded upon request. Please email sfo@sohansen.dk.



3 Data format and reading data

The JSON-file contains relevant information from the calibration certificate, including:

- Anemometer model, serial number, and date of calibration
- Calibration expression slope and offset
- Each individual calibration point (reference wind speed vs. anemometer output) including uncertainties
- Ambient conditions during calibration and mounting pole diameter and length

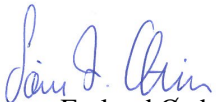
JSON is an open standard file format for sharing data that uses human-readable text, and is supported by many modern programming languages. Elaborate information on the digital calibration certificate and its data structure can be found at the GitHub repository:

https://github.com/IEA-Task-43/digital_wra_data_standard/tree/master/digital_calibration_certificate

The file `Readme.md` provides a good entry point, and an elaborate example of how to load and handle the data using Python is provided under: `tools/calibration_certificate_usage.ipynb`.

Copenhagen, June 12, 2023

Head of Calibrations



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References

- [1] <https://www.ieawindtask43.org/home>