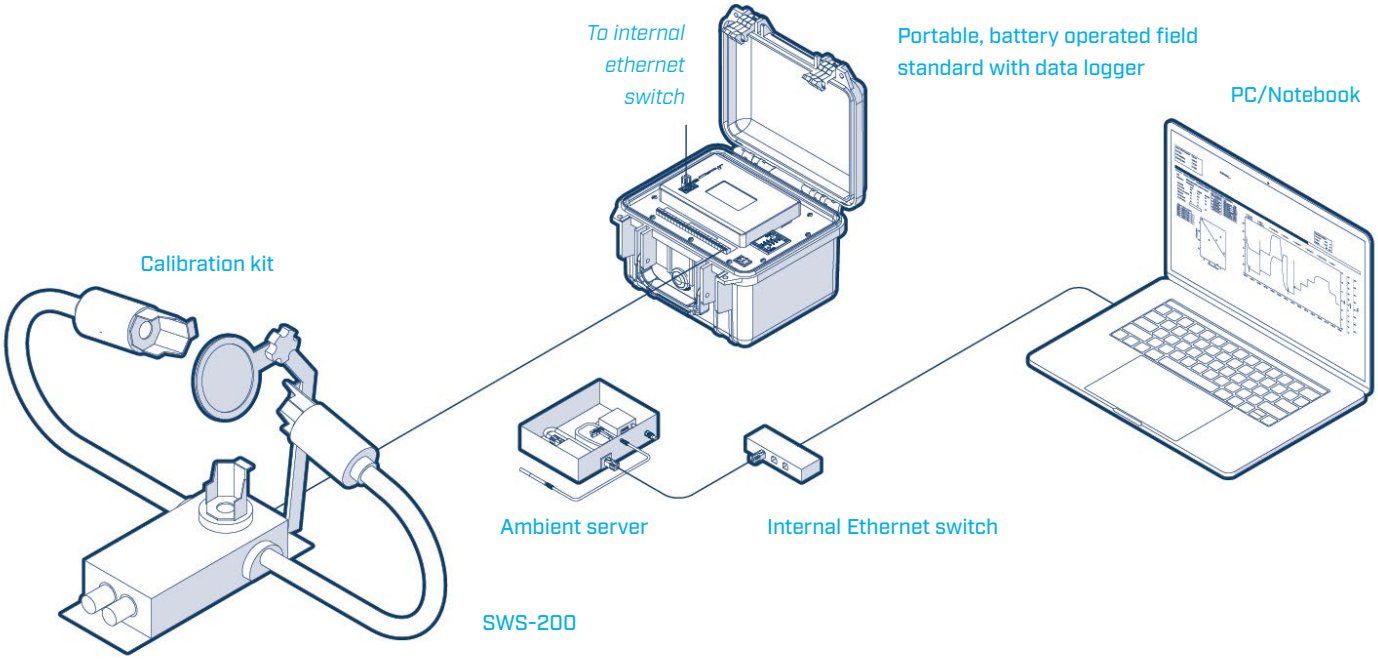
Calibration System for Visibility Sensors

Visibility and present weather sensors are used in many meteorological applications worldwide. They are often used as part of nationwide weather networks or as components in aviation and road weather monitoring systems. All of these systems require the sensors to be optimised for accurate and repeatable measurements.



Design based on experience from ISO / IEC 17025 accredited laboratory

Complete calibration system including calibration software and database

Very easy to use & labor-saving automatic calibration with IMS4 CalibLab

On-line calculation of measurement uncertainty

We customize the solution per your needs and budget

Many of these applications are safety critical and reliable data is essential for the correct operation of their modeling or decision making processes. Therefore, each visibility and present weather sensor must be regularly checked and re-calibrated (if necessary) against an independently verified testing standard to ensure their accuracy.

The visibility calibration plaque

The visibility calibration plaque is supplied in a protective carrying case and includes the plaque of a known visibility value. These calibration plaques can be fitted to any SWS or RWS sensor and utilize the special mounting points on each sensor's housing to install them correctly. Each calibration

plaque is ascribed calibration values (EXCO) and an equivalent visibility value (MOR) at its point of manufacture. These values are traceable to the reference transmissometer at the Royal Netherlands Meteorological Institute (KNMI - Koninklijk Nederlands Meteorologisch Instituut) in the Netherlands. Once installed onto the sensor, the technician follows the calibration check routine as detailed in the user manual. If the sensor fails the calibration check, then it may be calibrated following the calibration routine as detailed in the user manual. The calibration process can be carried out on-site in around 20 minutes without the need to return the sensor to a calibration laboratory. Thus, saving time whilst maintaining operational efficiency of the connected systems.

Technical specifications

Nominal calibration Values (range) **Forward EXCO** **Backscatter EXCO** **Equilvalent MOR**	 5 km^{-1} to 50 km^{-1} (25 km^{-1} typical) 15 km^{-1} to 150 km^{-1} (70 km^{-1} typical) 60 m to 600 m (120 m typical)
Measurement error	± 1%
Material	Anodised aluminium optical support and installation arm with polypropylene disc
Warranty	2 years
Packaging	The plaque is packaged in a rigid plastic foam lined protective carry case. Includes a set of foam zero reference optical plugs. - User guide

Calibration software IMS4 CalibLab

With IMS4 CalibLab, the process of calibration and adjustment of sensors can be fully automated. Read more:

The software guides the user through the calibration setup in several steps. Preconfigured sensor types include specific calculation of uncertainty, corrections and other formulas. Graphic user interface (GUI) allows the user to configure a new type of sensor. A list of setpoints can be edited, saved or loaded. The system evaluates the readings for stability, calculates mean values and uncertainty. In case of any problem, error is readily indicated by a sound alarm. The results are stored in a database. You can generate certificates by one click. You can freely edit the template to fit your needs. The database of calibrations holds the history of calibrations from whole calibration laboratory at one place. You can browse it by quantity, year, sensor type, serial number etc. Looking for calibration history of a certain instrument is a brief. The builtin database browser allows on-line tabular and graphical view of multiple certificates. The software supports export to .csv, .odt, .xml and .pdf formats. Whole database can be backed-up or restored by simple click of a button. There is also provision of automatic periodic back-up.

CalibLab software features:

- Graphical user interface
- Multiple step wizard for easy setup of calibration
- Automated instrument serial number readout (if supported by instrument)
- User-defined sensor types
- User-defined calibration process (setpoint list)
- Support of saving / loading of setpoint list
- Display of preliminary results during calibration
- Possibility to stop, pause or restart the calibration process
- Detection of sensor fault, automatic kick-out or wait until the problem is solved
- Indication of errors, sound alarm
- Generation of calibration certificates from template document
- Database of calibrations, filtering, graphing, export to .csv, .pdf, .odt, .xml
- Database backup / restore from file, automatic backup scheduler

For the automatic adjustment of the other types of sensors please contact **calibration@microstep-mis.com**.