



Make Sense[®]

Industrial monitoring solutions
for harsh environments

Product Catalog

Optical Sensors

Accelerometers for harsh environments

Data Acquisition & Up-link

Collect data and upload to the cloud

Software

On-premise or SaaS solutions with
built-in machine learning

Applications

Solutions for High Voltage Assets and
Wind Turbine Blades

2023



Table of Contents

TECH SUPPORT AND ORDERING	03
INDUSTRY 4.0	04
PRODUCTS	
- Optical sensor	06
- Data acquisition unit	08
- Other products	10
SOFTWARE SOLUTIONS	
- CEKO Cloud & on-premise	12
APPLICATIONS	
- High voltage	16
- Wind turbine blades	18

Industry 4.0

Optimized efficiency, high uptime and minimum maintenance costs are key to maximizing almost any industrial process.

Doing so requires knowledge for intelligent and timely decision making. CEKO Sensors makes it easy to get the information you need from almost any industrial, harsh environment imaginable.

Volume Production

If one sensor creates value, imagine what can be accomplished with 10,000 of sensors.

Microtechnology is ideally suited for volume production. Contact our sales office at info@cekosensors.com for further information on volume production.

Custom Solutions

Based on highly flexible MEMS technology we make tailor made solutions that fits your exact needs.

Whether it is specs, certifications or other questions, please contact us at info@ceko-sensors.com or directly by phone in order to learn more about our custom solutions.

Contact information


CEKO Sensors ApS
Diplomvej 381
DK-2800 Kgs. Lyngby
Denmark

+45 7199 3646

info@cekosensors.com
www.cekosensors.com



ADVANCED PREDICTIVE MONITORING



WIND TURBINE BLADE MONITORING FOR HIGHER UPTIME AND INCREASED PRODUCTION



BUILDING MONITORING FOR LIVE ENVIRONMENTAL DATA AND OPTIMIZING ENERGY CONSUMPTION



...FOR ANY HARSH ENVIRONMENT

MONITORING OF HIGH VOLTAGE ASSETS FOR IMPROVED OPERATION, EARLY WARNINGS AND LIFETIME EXTENSION.



THE OA-1 ACCELEROMETER

All-Optical and metal-free MEMS accelerometer for harsh environment sensing.

With the OA-1 accelerometer series harsh environment predictive monitoring is as simple and reliable as it gets. Designed for operation in extreme temperatures and to withstand strong electromagnetic fields and discharges the OA-1 accelerometers can solve almost any monitoring task.

Based on the unique Refractive Index Modulation (RIM) technology the OA-1 sets new standards for optical sensor performance with industry leading sensitivity, frequency range and temperature resistance, not to mention the physical size and weight which is several orders of magnitude smaller than conventional technology.

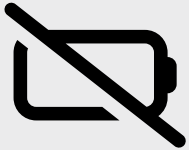
The OA-1 is truly made for the future.



UNIQUE FEATURES OF THE OA-1 ACCELEROMETER

PASSIVE

All-optical sensors and 100% metal-free.



RELIABLE

EMF free, ATEX Zone and IP67 compatible.



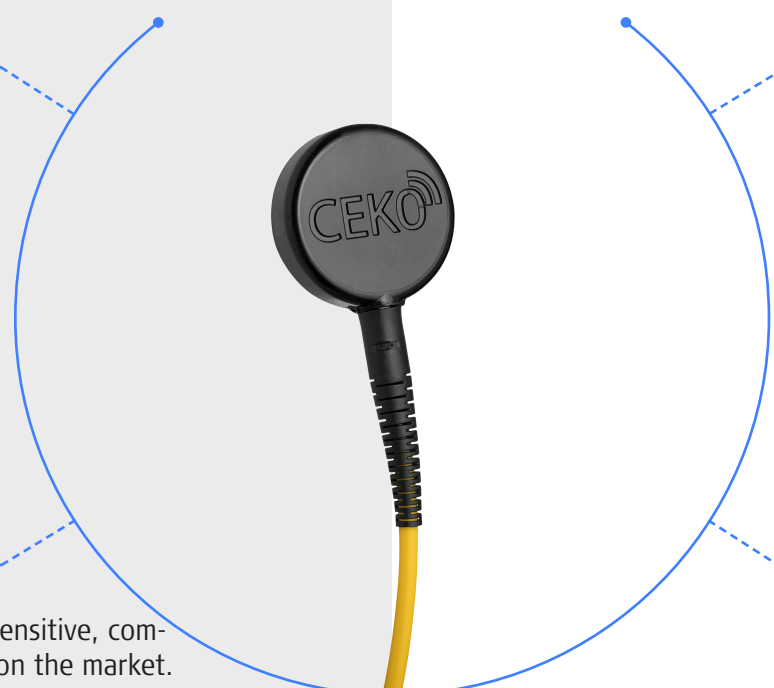
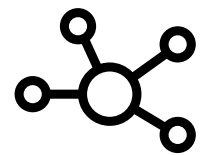
PRECISE

Up to 1000 times more sensitive, compared to similar sensors on the market.



FLEXIBLE

Small and easy to install.



OA-1 - Technical specifications

Dimensions	Ø27x7 mm
Weight	5 gram
Operating temperature	-40 to 80 °C
IP rating	IP67
ATEX rating	Zone 0
Communication interface	Fiberoptic (LC)
Maximum cable length	40 km
Sensitivity	Up to 3000 pm/g*
Center wavelength	1510 to 1590 nm
Frequency range	Up to 10 kHz
Acceleration range	+/- 3000 g*

* g is the gravitational field



THE SDAS™ INSIGHT

Data acquisition and cloud up-link for fully integrated IoT solutions.

The CEKO SDAS™ Insight is a highly integrated and robust IIoT monitoring back-end that connects your optical sensors to the cloud.

Designed for secure, reliable and continuous streaming of sensor data from any asset it is a highly configurable and flexible solution, making even demanding monitoring tasks simple and straightforward.

Simply connect the SDAS™ to a standard power outlet and it will start transmitting data to your online storage in the CEKO Cloud, where you can access and review it any time.

Perform any kind of analysis you like and even autogenerate periodic reports for quick and easy asset monitoring. It is as simple as that.

EXPLORE THE SDAS™ INSIGHT

SIMPLE INSTALLATION

Born with switch magnets for easy attachment. Touch screen and button for easy installation

MANY COMMUNICATION OPTIONS

LoRaWAN, WiFi and 5G compatible as standard.



POWERFUL

Edge computing capabilities and high resolution.

DURABLE

IP65 rated and with a built in UPS supply.

SDAS™ Insight - Technical specifications

Dimensions	26 x 26 x 9 cm
Weight	4,5 kg
Operating temperature	-40 to 80 °C
IP rating	IP65
ATEX rating	Zone 2
Supply voltage	230 V
Power usage	30 W
Communication interfaces	LoRaWAN, 5G, WiFi
Laser class	3R
Maximum sensors	18



SDAS™ COMPACT

The SDAS™ Compact is tailor-made for smaller applications where you only need 1-2 sensors, but without compromising on quality and durability.

The SDAS™ Compact still comes with simple installation, a variety of communication options and edge computing capabilities.

Due to the smaller enclosure and lower price, you can easily have multiple systems on e.g. high voltage circuit breakers, without the need for cable runs between assets, making it the preferred solution in many applications.



BUILDING SENSOR

Monitoring of your buildings can be of great value, as it can e.g. help you optimize the buildings energy consumption, monitor temperature and humidity, and give you historical data.

A CEKO Building Sensor is easily attached with magnets and are therefore installed in less than 1 minute.

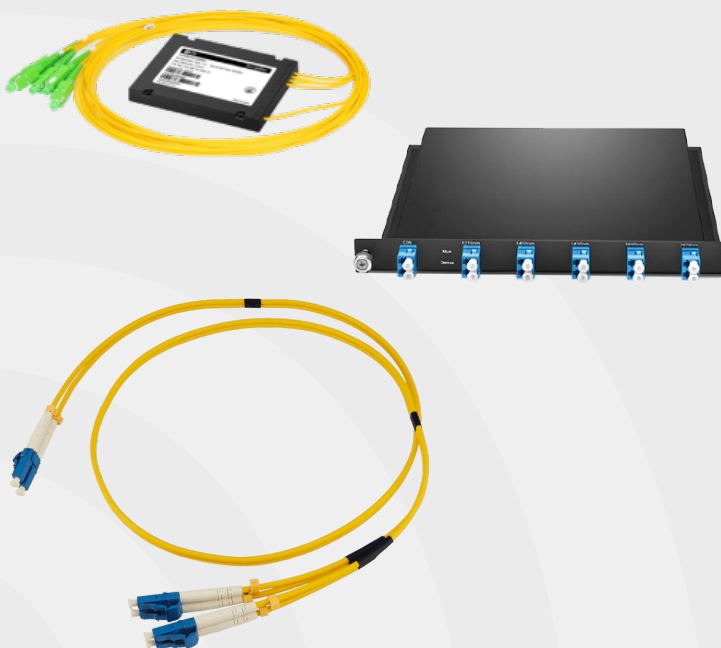
With built-in LoRaWAN it gives you live environmental data of your building. Bi-directional communication also gives you the possibility to remotely control external relays for e.g. building heating and ventilation.



OIL POCKET SENSOR

The oil pocket sensor from CEKO is based on an optical FBG standard. This makes it passive and fully compatible with the SDAS™ systems.

The metal probe comes in various lengths and the fiberoptic cable is protected by a flexible tube which is isolated to reduce the risk of leakage current and erosion.



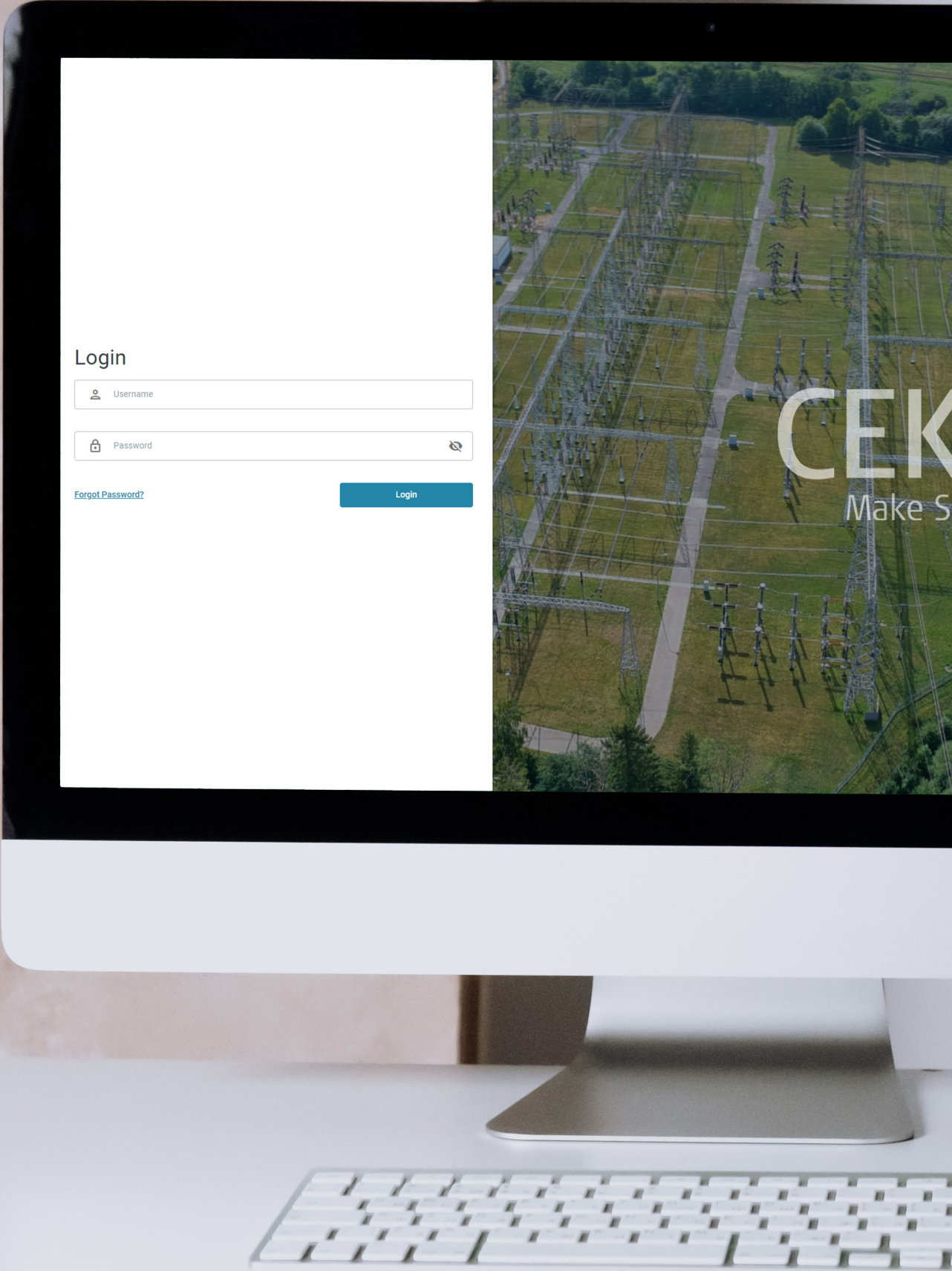
OPTICAL SUBCOMPONENTS

In order to assure maximum compatibility and minimum installation time CEKO has a wide range of subcomponents for flexible integration.

Using primarily telecom based standards these sub-components have a long track record of high reliability and availability.

One major advantage of optical subcomponents compared to electrical counterparts is that many operate passive, i.e. no additional power source is required.

This means that signals can be split, coupled and interlaced at the speed of light without compromising safety or introducing e.g. metal containing wires or batteries in critical areas.



Login

[Forgot Password?](#)

Login

CEK
Make S



CEKO Cloud

The CEKO cloud solution is a highly scalable, highly flexible software-as-a-service (SaaS) solution. Data is automatically uploaded from the SDAS monitoring system to the cloud where users can access live and historic data and perform data analysis, setup warnings and notifications and reconfigure the SDAS system using the built-in bi-directional communication feature.

In CEKO Cloud we provide you with

Dashboards
System overviews
Online monitoring

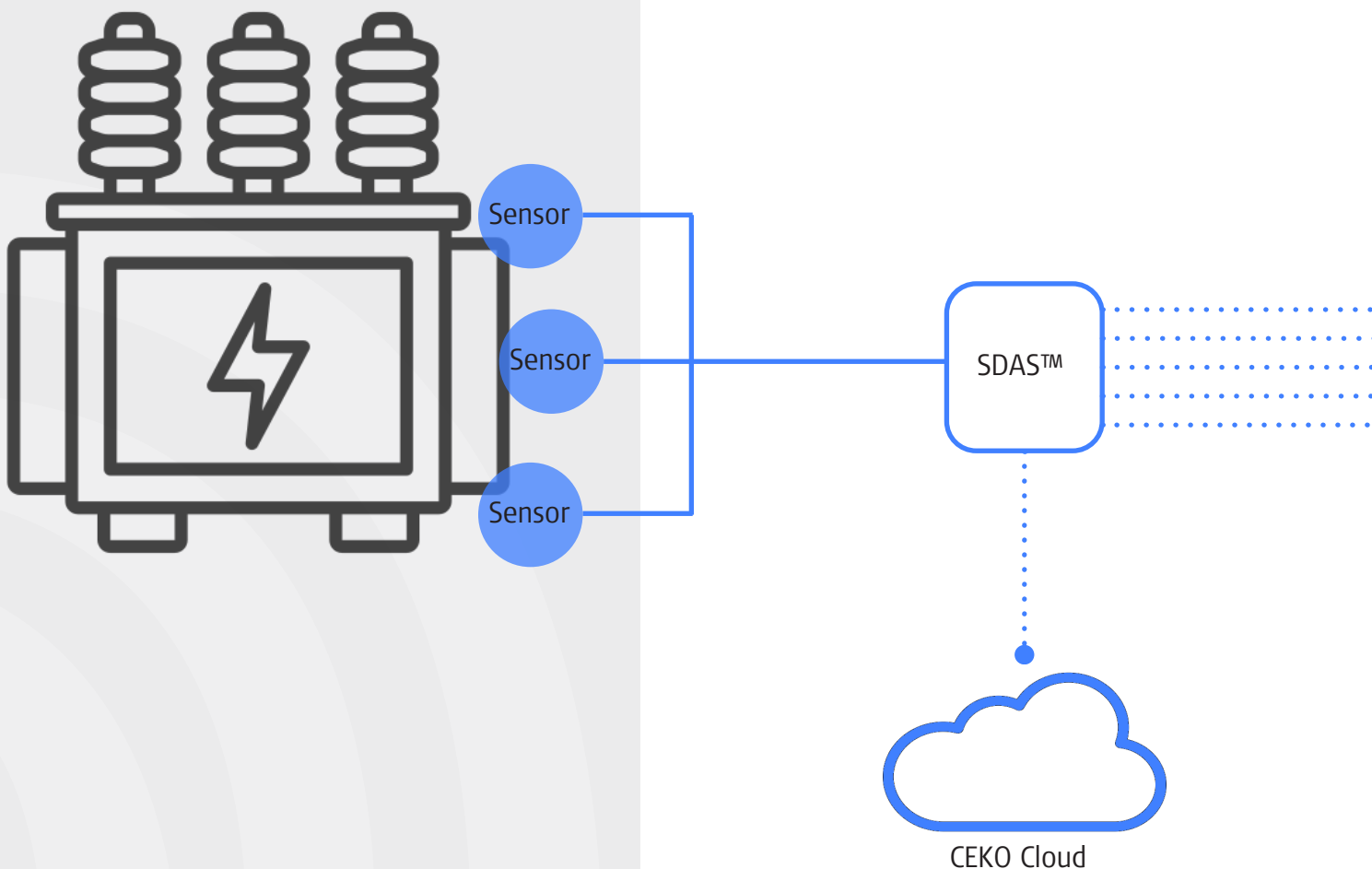


SOFTWARE SOLUTIONS

Analyze data in the cloud using the CEKO Cloud software or through a customized solution. It's all up to you!

Whether data collection is performed on-premise or remotely through the cloud CEKO Sensors has a solution that fits your needs. Build on a high performance backend, advanced data analysis algorithms and with built-in machine learning features CEKO software solutions makes it quick and simple to collect data and visualize asset performance for better asset management.

The CEKO Cloud solution utilizes the power of containerized software to create a robust, secure and extremely scalable solution to be deployed anywhere in the cloud. Data is continuously uploaded from the systems in the field to the cloud, where data is stored for later access and analysis or download for local processing.

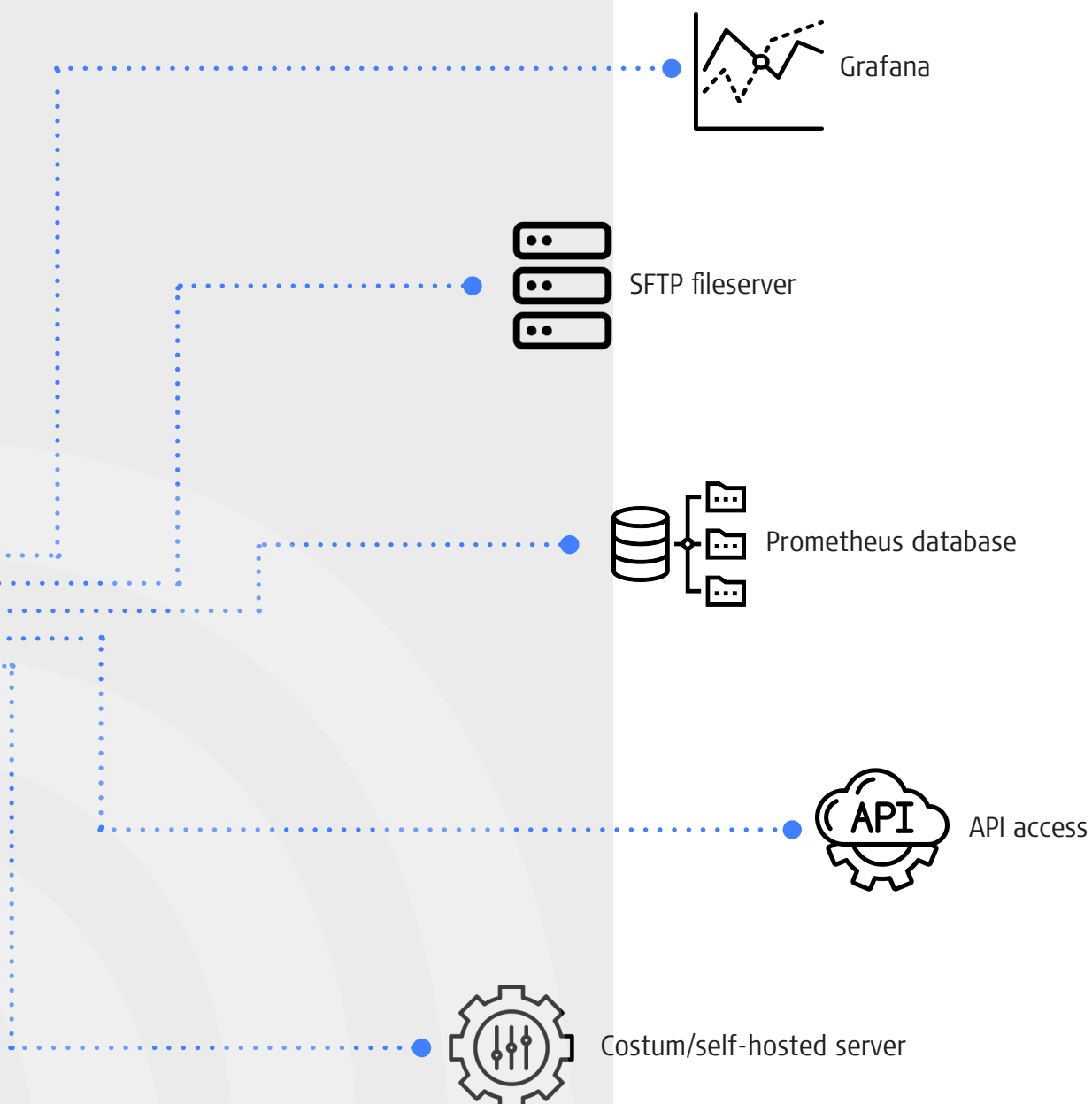


"FLEXIBILITY IS KEY,"

The software solutions from CEKO matches any demand, from single asset monitoring to large scale monitoring of e.g. wind turbine farms or marine vessels. High scalability, flexibility and responsiveness are essential characteristics of CEKO software and uptime, accessibility and security are our highest priorities.

Whether you would like a full cloud solution, a visual presentation in Grafana og raw data through an SFTP server, we have your back.

At CEKO Sensors we believe that flexibilty is key.



HIGH VOLTAGE

YOUR EXTRA SET OF EYES

Continuous monitoring of your high voltage asset.
To ensure uptime, increased lifetime and minimized operational costs

Reduce operation and maintenance costs, while increasing both uptime and lifetime by installing all-optical monitoring systems directly on high voltage assets.

Continuous data acquisition using the CEKO SDAS monitoring system and the CEKO Cloud software is a plug and play solution for power systems of tomorrow.

Get performance characteristics from day 1 and verify that the asset operates within specifications

Prepare for the unknown by detecting outliers and anomalies for improved failure analysis, early warnings and lifetime extension.

Monitor key indicators on lifetime and asset health, incl. noise, overtones and phase for predictive maintenance capability.





Transformer monitoring

Predictive maintenance and operation optimization is made easy with the CEKO Sensors transformer monitoring solution.

Key parameters of the transformer and tap changer are monitored continuously, including the core, windings and tap changer health.

Monitoring parameters

- Tank oil temperature
- Core/winding health
- Tap changer health
- Transformer current
- Transformer voltage
- Tap changer operation counter and time
- Total harmonic distortion
- High frequency harmonics
- Acoustic noise

High voltage circuit breaker monitoring

High voltage circuit breaker (HVCB) monitoring enables low-cost, automatic monitoring 24/7 and is a powerful and essential tool for implementing predictive maintenance strategies.

The HVCB monitoring solution from CEKO is a robust monitoring system that gives key information on current and future condition of the circuit breakers.

Monitoring parameters

- Springs
- Dampers
- Push rod
- Synchronization
- Anomalies

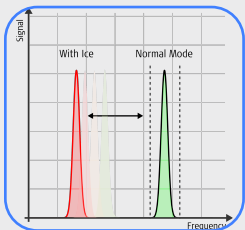
WIND ENERGY

OPTIMIZATION OF YOUR BLADES

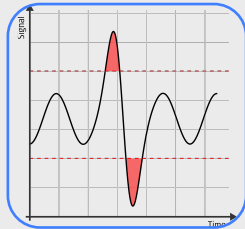
Maximize production of your wind turbine,
with a blade monitoring system.

Blades rotate at high speeds, in all weather conditions and experience high wear and tear causing blade failures, extended service and down time.

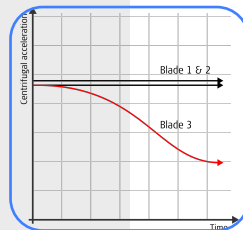
The CEKO blade monitoring solution keeps an eye on the blades 24/7
so that production time is maximized, and service limited to the bare minimum



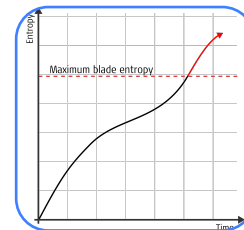
Ice detection



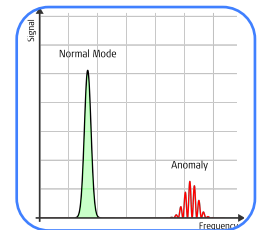
Aerodynamic
optimization



Pitch imbalance



Entropy
measurement



Erosion monitoring





Safe, durable and 100% metal-free

Blade monitoring and alarm system using state-of-the-art microsensors technology.

The system gives you

- Increased operational time
- Reduced maintenance costs
- Improved safety
- Optimized production
- Increased time between services

Less maintenance and costly repairs

Loss of production is a fact of life for wind turbines, whether caused by scheduled service, ice on the blades, erosion or acute failures.

With a blade monitoring system from CEKO Sensors you get

- Ice detection
- Aerodynamic optimization
- Erosion monitoring
- Entropy measurement
- Rotor imbalance monitoring



Contact information

CEKO Sensors ApS
Diplomvej 381
DK-2800 Kgs. Lyngby
Denmark

Email: info@cekosensors.com
Telephone: +45 7199 3646

For more information, please go to
www.cekosensors.com