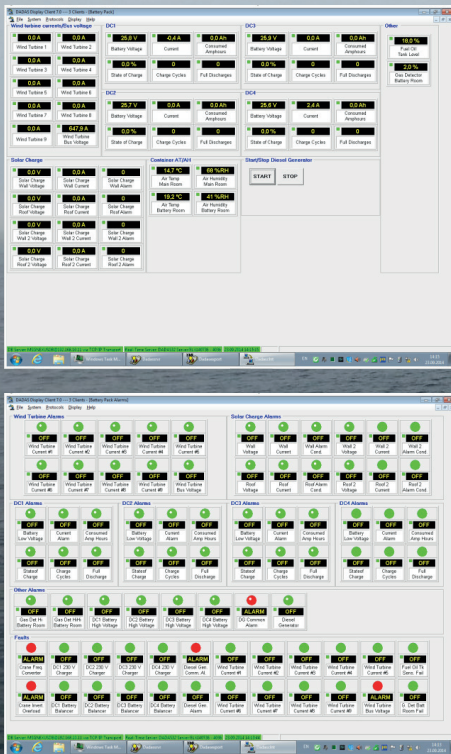


CONDITION MONITORING SYSTEMS



Foundation and Structural Monitoring for Offshore Wind Structures, Turbines and Subststion

WISE Group have been involved in offshore Data Acquisition and Monitoring Systems since these systems were first introduced as an aid to improve safety in offshore operations. Systems utilizing the well proven and user-friendly DADAS real-time data acquisition software have been in operation in harsh offshore conditions for decades with minimum downtime. The systems can be tailor-made to suit local conditions and can easily be expanded in the future to comply with new demands, rules and regulations. We can also provide installation support, annual service, calibration services and training of personnel as required. Current new systems will comply with all known rules and regulations worldwide and can also be tailor-made to each customer and project specifications.

Condition/Foundation Monitoring System

A basic Condition Monitoring System is designed to comply with all project specifications, rules and regulations of the region where it operates as well as the safety standards of the owner.

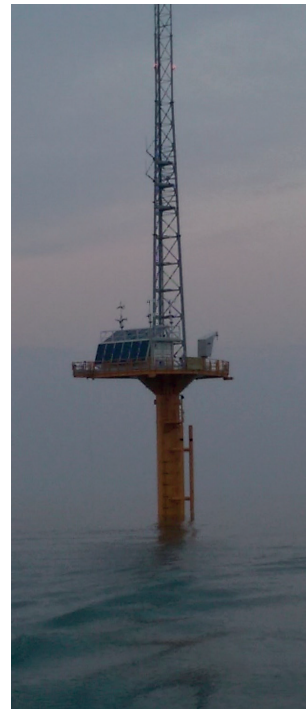
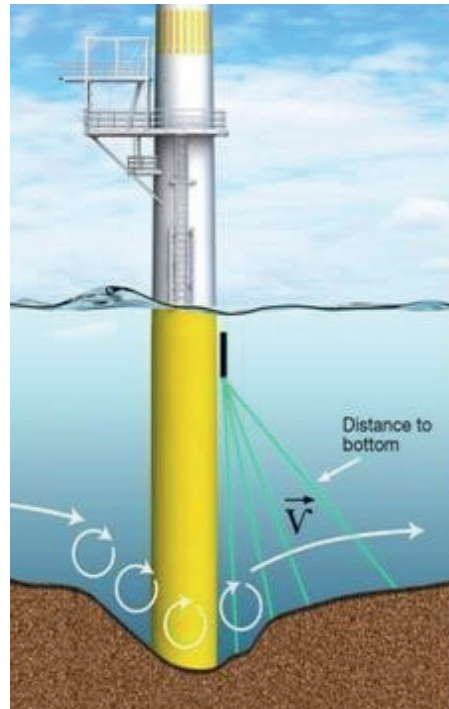
Typically most systems are built to comply with owners specifications and national regulations.

Such basic systems can include:

- Environmental sensors such as wind, meteorological, current, tide and wave sensors
- Motion sensor, incl. 3-axis accelerations, inclinations and vibration measurements
- Pressure Monitoring and Leak detection
- Corrosion monitoring sensors
- Water level and water quality sensors
- Pollution / Oil Spill monitoring
- Structural sensors / Strain Gauges
- Scour Monitoring
- Data acquisition and display system

The main purpose of the system is:

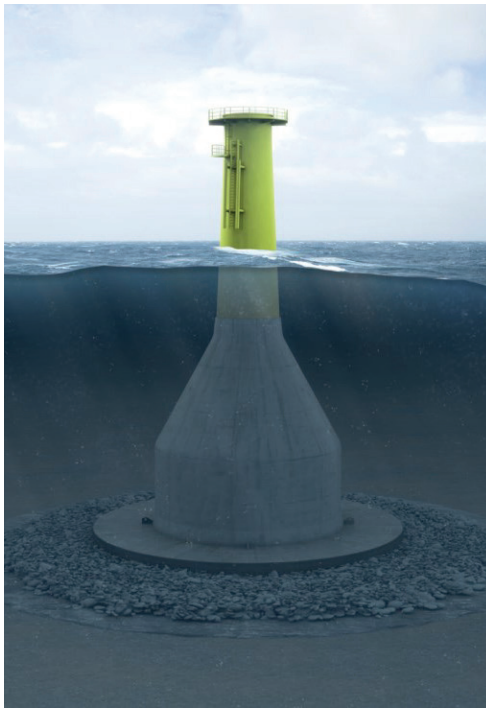
- To provide local operators with real-time data of the prevailing conditions during normal operations
- To provide the owner of the installation with long-term statistical data of the condition of their asset
- To provide input and background data for planning of regular and extraordinary O&M activities
- Communicating data to other users, local or remote



Rules and Regulations for CMS/FMS

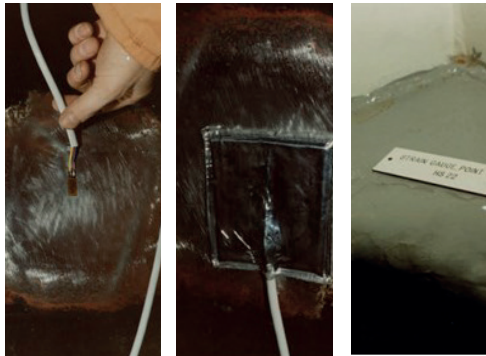
CMS/FMS systems from WISE Group can comply with all the following rules and regulations:

- National rules and regulations in country of installation, such as BSH and other de facto standards for many areas of the world.
- All dedicated specifications from owners or operators of offshore wind farm.



Features and options

- Clear, user-friendly displays of all data vital to wind farm operations
- Automatic or manual generation of a report that can be sent electronically to onshore users, incl. wind farm owners and operators
- Additional DADAS software modules available for MODBUS, SNMP or other formats, additional reporting and many other applications
- Can be connected to LAN or Internet for further data distribution or web access
- Long term data logging capacity for later data analysis or investigations
- Modular design to allow adding sensors or users and to expand the system to a full EMS system, incl. MetOcean, Anchor Tension, Excursion, etc.
- Full integration between CMS/FMS systems and any other marine or structural system available and encouraged in order to avoid duplication and costs
- Can be free-standing, rack-mounted or integrated in other packages
- Virtual server installations available
- Trend displays and/or History displays can be added and customized to the individual user
- Quick and easy installation and commissioning
- Full worldwide support capability for service and annual check and maintenance
- Motion verification services available including a comprehensive report documenting the system performance
- Full operator and technical training available, both as on site training and as classroom training onshore. Regular training courses available



DADAS FMS software - a market leader

The DADAS family of software products has been developed since 1992 specifically for CMS/FMS and MetOcean applications and has a number of unique features:

- Extremely flexible and modular design for easy implementation and expansion.
- Well proven from a large number of demanding installations, onshore and offshore.
- Very user friendly displays (GUI) developed in close cooperation with experienced system users.
- Optional alarm and data exchange with third party systems in proprietary or standard formats, such as Modbus, SNMP, NMEA and many others.



Installation and commissioning services Offshore experience

We have a well qualified team of field service engineers who can undertake service work on all kinds of offshore sensors and data acquisition systems.

All our engineers have extensive experience from offshore work, shipyard work and onshore work.

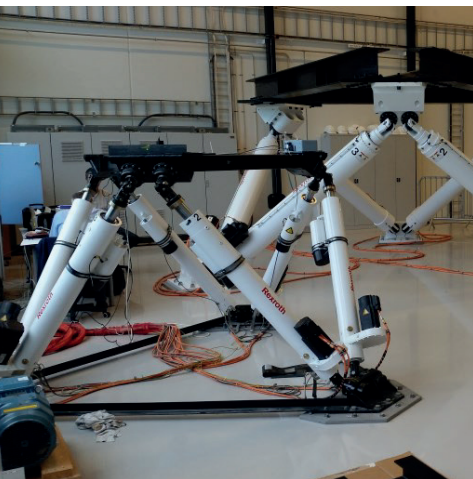
Onshore service and calibration services

We can also service and calibrate all kinds of sensors and MetOcean equipment used in offshore renewable projects. Our workshop is equipped for servicing and calibrating many different kinds of sensors and instrumentation.

Operation and maintenance services -O&M

The WISE team of field service engineers can also undertake O&M service work on sensors and systems as well as on other kinds of sensors and data systems. Our engineers can take care of preparing O&M schedules, carry out maintenance visits, analyse data, service equipment and many other related tasks.

We can also offer long-term service agreements and online preventive service agreements for systems that can be reached online.



Turn-key instrumentation projects

We can take full responsibility for all aspects of offshore instrumentation projects from design of the system, engineering, system integration, installation, commissioning, operation and maintenance to data management.

CERTIFICATIONS:

WISE GROUP:
ENVIRONMENTAL INSTRUMENTATION
IS OUR SPECIALITY!

