



## Marine Crane/Winch Safety & Monitoring Solutions

Advanced Monitoring • Predictive Safety • Intelligent Crane Management

**ALQAQNOOS** offers complete Crane/Winch safety, monitoring, and intelligent control solutions for marine and offshore environments. Our services enhance the safe operation of pedestal cranes, deck cranes, shipyard cranes, and heavy-lift units by integrating modern digital monitoring, structural assessment, and automated safety protection technologies.

### 1. Intelligent Crane/Winch Safety Monitoring System

An integrated system combining **real-time data acquisition**, **operational tracking**, and **safety alarms** to ensure reliable crane performance.

#### Key Functions

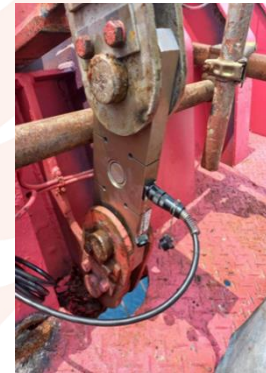
- Real-time load, angle, wind speed, hook height, and operational status monitoring
- On-screen display for crane operators and maintenance teams
- Continuous data recording for incident review & maintenance planning
- Automatic alarms for overload, abnormal motion, or unsafe operating zones

### 2. Load Moment Indicator (LMI) & Overload Protection

Critical for preventing structural damage and lifting accidents.

#### Capabilities

- Load sensing via pin, clamp, or tension sensors
- Boom angle, radius, and moment calculation
- Overload warning and automatic intervention
- Suitable for telescopic, fixed, knuckle, and offshore pedestal cranes



### 3. Anti-Collision & Safe Working Envelope Control

Designed for congested offshore platforms, shipyards, and multi-crane operations.



#### Features

- Millimeter-wave radar positioning and distance sensing
- Collision prediction & automatic motion restriction
- Multi-equipment coordination in shared lifting zones
- Obstacle detection for boom, jib, hook, and slewing motion





## 4. Structural Health & Stress Monitoring

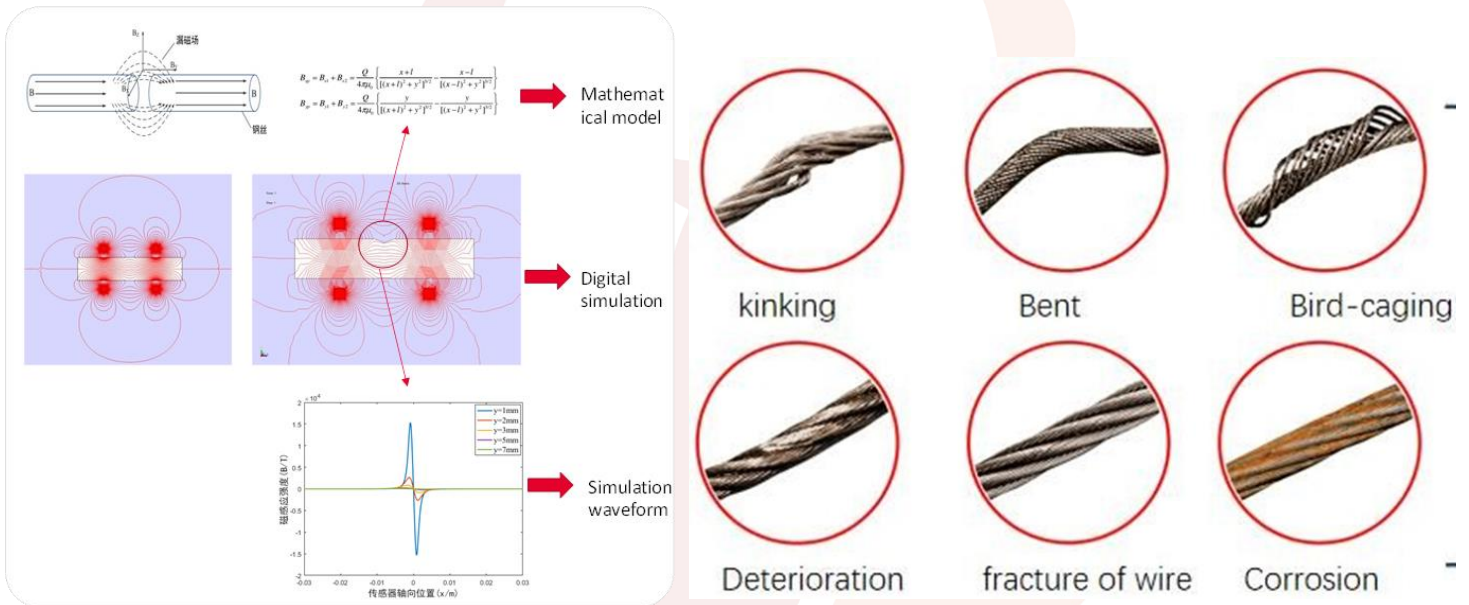
Ensures long-term reliability of critical crane structures.

### Technical Scope

- Monitoring of stress on boom, mast, pedestal, and supporting structures
- Overload fatigue tracking and analytics
- Trends, early-warning alerts & fatigue analysis
- Supports predictive maintenance and life-extension planning

## 5. Wire Rope Online Inspection System

A high-accuracy diagnostic method to detect hidden defects that visual inspection cannot identify.



### Detectable Conditions

- Broken wires, fatigue damage, corrosion
- Birdcaging, kinking, deformation
- Internal stress concentration (magnetic memory effect technology)

### Benefits

- Nondestructive testing (NDT)
- Real-time damage localization
- Supports rope-change planning and certification compliance





## 6. Intelligent CCTV & AI-Enhanced Visual Monitoring

Improves visibility, situational awareness, and operational safety.



### Capabilities

- Explosion-proof high-definition cameras for marine environment
- AI hook tracking and lifting-point recognition
- Alarm for misalignment, obstructions, or unsafe personnel proximity
- Playback for incident investigation and training

## 7. Crane Automatic Lubrication System



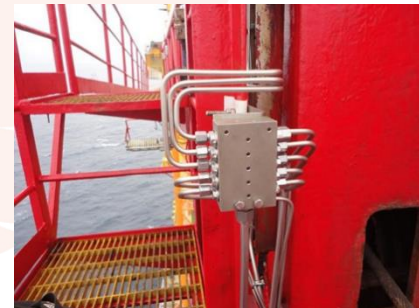
Automatically delivers precise lubrication to critical crane components to prevent wear and reduce maintenance downtime.

### System Capabilities:

- Automated grease distribution to slewing bearings, boom hinge points, winches, sheaves, and wire ropes
- Programmable lubrication cycles
- System pressure monitoring & low-level alarms
- Reliable operation in harsh offshore environments

### Benefits:

- Reduced mechanical wear and corrosion
- Fewer manual lubrication activities → safer working conditions
- Longer component life and lower maintenance costs
- Consistent lubrication during crane operation



## 8. Hydraulic, Motion & Equipment Condition Monitoring

Ensures the crane's mechanical and hydraulic integrity.

### Monitoring Includes

- Hydraulic pressure for main/auxiliary circuits
- Slewing, hoisting & boom actuation parameters
- Gearbox vibration analysis and early-fault detection
- Automatic lubrication systems for boom hinge points

## 9. Offshore Crane Intelligent Control Integration

A unified operational platform for advanced crane safety management.





## Integrated Functions

- Centralized dashboard for operations, maintenance & alarms
- Data logging and cloud-ready reporting
- Remote diagnostics support
- Compliance with offshore lifting HSE requirements

## Why Choose ALQAQNOOS?

- Professional installation, calibration & commissioning
- Support for all crane types: marine, offshore, shipyard & heavy lift
- Compliance with international standards & Class societies
- 24/7 emergency attendance & technical support
- Access to advanced crane safety technologies through our technical partners

## Your Trusted Partner in Crane Safety & Monitoring

**ALQAQNOOS** ensures safer lifting operations by combining intelligent monitoring, predictive diagnostics, and reliable safety systems—delivering secure, efficient, and digitally enabled crane operations for marine and offshore environments.

