JACK UP UNITS AND DIGITAL TWINS

SENSFIB™ for structural health data

LIGHT STRUCTURES
Passion for Monitoring

Specialist Insight for Intelligent Operations
Jack-up rigs and vessels face variable loads due to their interaction with the seabed during preloading and jacking operations. These forces can lead to fatigue, buckling, and punch-through at the spudcans or leg-hull interface. For marine construction and Wind Farm Installation Vessels (WFIVs), additional stress is introduced through cargo transport and deck loading.

To to protect jack-up units, Light Structures offers a dedicated SENSFIB™ configuration using fibre optic sensors embedded in the jacking house and other key areas. Combined with a calibrated digital twin, the system calculates live sectional loads and identifies hotspots in real time. Alarms are automatically triggered when thresholds are approached, enabling early intervention.

Real-World Structural Data
SENSFIB replaces assumption-based inspections with real fatigue data. Operators can precisely target inspections after storm events or challenging jacking operations, reducing downtime. Over time, this supports lifecycle planning, smarter maintenance, and informed decisions around upgrades or service life extensions, all based on real-world structural evidence.

Flexible & Scalable Architecture
SENSFIB is highly scalable, supporting all types of jack-up units self-elevating rigs and vessels. Optional accelerometers and MRUs enable event-driven logic for deck grillage, cargo fatigue, and motion-induced slamming.

Acquire. Analyze. Act.

Acquire precise structural stress and fatigue data

Analyze acquired data & deliver to any digital platforms

Act on insight from reliable structural monitoring data

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Certified Insight for Smarter Operations
SENSFIB systems are fully compatible with leading classification society notations for digital operations, such as ABS SMART(SHM). This allows operators to align with condition-based maintenance regimes and digital inspection standards more easily, while also unlocking potential reductions in survey scope and drydock frequency.

Light Structures has already delivered this system on two jack-up units, including the first believed Tier-3 SMART(SHM) certification using fibre optic sensors and a digital twin. The result is faster certification, smarter inspection strategies, and better use of structural data across the lifecycle.

Easy installation, low maintenance
SENSFIB sensors are fixed to structures using an epoxy resin, so no welding is needed during installation. And, because there are no moving parts, maintenance is low. With long life and low OPEX, SENSFIB provides reliable performance that adapts to complex operational demands, without increasing mechanical complexity.

SENSFIB™ sensors & solutions optimise the lifecycle maintenance costs of your offshore assets.

Why choose Light Structures?

- ABS SMART (SHM)-certified
- Over 500 global installations
- Zero-maintenance fiber optic sensors
- Fully scalable system architecture

SENSFIB™ is a proven, future-ready choice for a wide variety of ships and platforms, from jack-up units to tankers, LNG carriers, and naval vessels

Contact Light Structures to learn how the data provided by SENSFIB can protect your assets and optimize cost throughout their entire lifecycle.

Contact Light Structures to find out how our SMART (SHM) certified solutions can help protect your ships, offshore vessels, and maritime assets.

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SCAN ME