



“Where will our knowledge take you?”

Single Point Mooring Telemetry & Control System (SPM-TCS)



About SPM-TCS

BMT's **SPM-TCS** provides real-time operational and environmental data, alongside highly available control functions to increase safety and operational awareness during operations.

The **SPM-TCS** can be configured to meet the specific needs of any global operator. Modular control system and software design facilitates fast-track reliable project delivery for both new build and existing SPM's requiring upgrade or overhaul. The system can be skid mounted or integrated onto all SPM types including wheel and rail, turntable and turret type buoys.

With BMT's SPM-TCS operators can achieve higher cargo transfer rates, safely and reduce the SPM buoy collisions by monitoring approach operations.

System Functionality

BMT's **SPM-TCS** has the following important features:

- Turnkey package including solar/wind energy system, slip ring assembly and all SPM auxiliary equipment
- SPM position and excursion monitoring
- Modular design, allows for both fail safe or fault tolerant (redundant) control system architectures using fiber optic, UHF or WLAN communications
- Navigation Aid packages tailored to the specific needs of a terminal
- Process IO and equipment including valve status/control and product temperature, pressure, flow rates

- Hawser tension measurement with management database

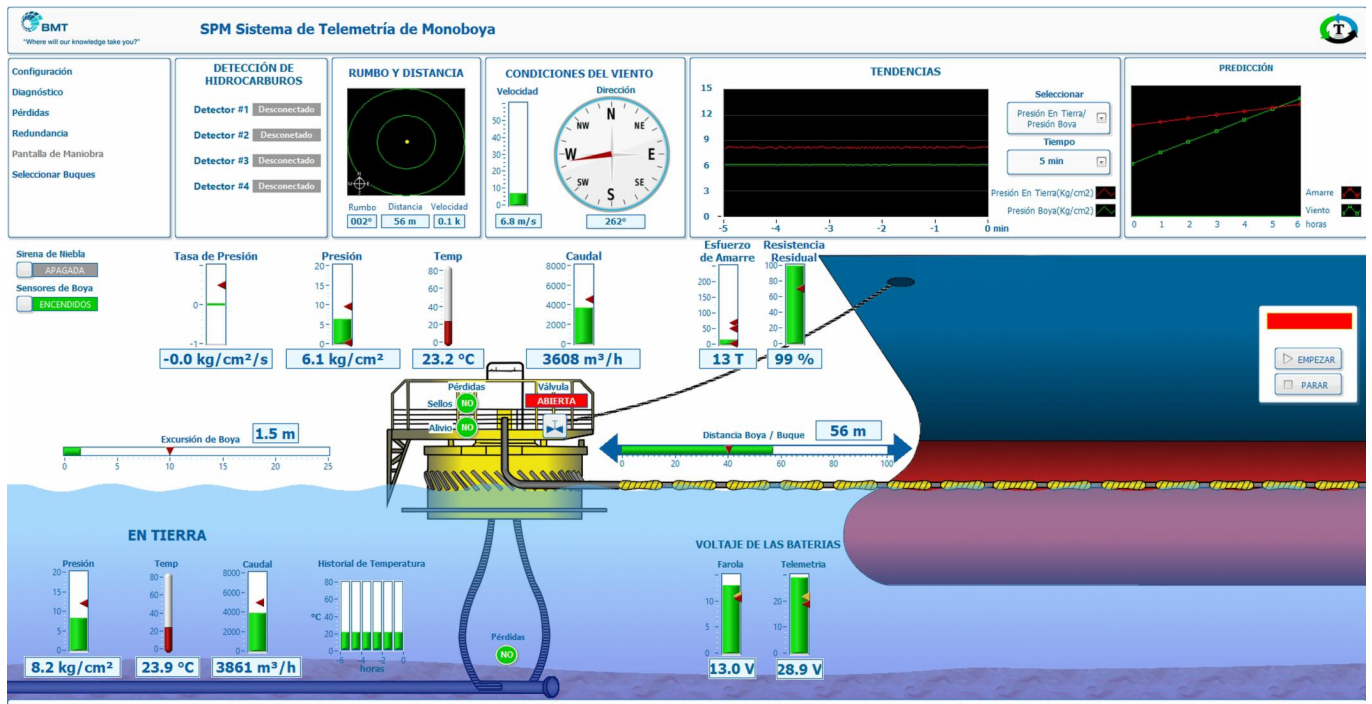
Additional functions include:

- Tanker position and relative speed
- Metocean packages (wind, wave and current)
- Oil spill detection
- Security surveillance including CCTV and Chip Radar
- Pipeline End Manifold (PLEM) subsea control modules

BMT Capability and Experience

Operating in the Oil and Gas industry for almost two decades, we have developed and installed motion and tension monitoring systems, provided asset monitoring instrumentation on platforms and supplied data analysis for subsea structures' integrity assessments for a number of customers.

The first BMT SPM-TCS system was delivered in 1998 and continues to operate to this day. We have also supplied fourteen SPM monitoring systems to PETROBRAS and developed and installed their telemetry systems with oil transfer control and essential operational parameters.



Enhanced Integrity Management

BMT also supplies systems to marine terminal operators for enhanced integrity management, these systems include:

- Buoy excursion and draft measurements (to detect mooring line failures)
- Buoy direct or indirect mooring line tension monitoring
- Offloading line strain and bending for deep water SPMs with permanent Oil Offloading Lines (OOLs)
- Flex-joint inclination measurement and fatigue calculation for deep water SPMs with permanent OOLs
- Buoy motions
- Slewing bearing greasing rates

- Slewing bearing bolt 'tightness' tensions
- Swivel bearing torques
- Competitive, fully integrated Terminal Weather Forecasting Service through established BMT forecasting services

System Reliability

The modular SPM-TCS design allows configuration to meet project specific safety level requirements, using both fail-safe and fault tolerant architectures. In all cases, BMT uses field proven, industry leading control and communications equipment to deliver highly available and secure systems. Additional support for RAM, risk and safety studies is available from BMT's experienced global team.

Commissioning and Operational Support

BMT is committed to providing customers with truly responsive commissioning and after sales service. Our experienced specialists can assist with installation and commissioning on site, recommend and provide spares, technical updates, technical support, data management and analysis, operator training and field servicing.

Upgrades and Overhaul

BMT can provide upgrades and retrofits of Telemetry and Control Systems onto existing SPM buoys undergoing overhaul on site to ensure they are in good condition.

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