Deflection Monitoring System (DMS)
Monitoring for offshore and IMR applications

Ashtead Technology’s DMS product range is a diverse family of structural monitoring solutions for offshore construction and IMR applications.

With our field proven standard in-house software and data management systems and precision survey instruments, our DMS system has been used for monitoring structural deflection of structures such as manifolds, templates, PLETs, rigid jumpers and TLP tendons.

Being modular and scalable we can configure robust and reliable systems easily and can provide powerful but easy to use and understand graphic visualisation software, allowing fast learning and minimum potential for error, across the vessel and if required in real time to your desk with our real time NetViewer™ applications.

With remote communications systems providing safety benefits and ability to provide full Internet based support of offshore operations from onshore, our systems have delivered a major step forward in creating a safer, lower cost operating environment, with proven backup support throughout your operations wherever you are. 24 hours a day, every day.

Our DMS systems can be easily configured for dual independent template and manifold structure installation, providing monitoring, computation and visualisation of:

**Structure land-out:**
- Depth
- Attitude
- Heading

**Suction pile pull-in:**
- Installed depth
- Depth differential to reference
- Attitude
- Linear deflection
- Torsional distortion
- Suction pile differential pressure

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**Applications**
- Subsea manifold, template, plem & plet type structure installations
- Pile foundation installations
- Structure foundation stability monitoring
- Spool load-out and installation monitoring
- Subsea modification metrology

**Features**
- Fully integrated monitoring system using proven technologies
- Configurable platform, allowing easy adaptation for specific applications
- Robust and reliable systems with proven track record
- Fully recoverable system
- Compatible with all field positioning acoustic systems
- Easily re-deployed for multiple structure installations
- Intuitive graphic visualisation displays
- Full on-board data logging at subsea and surface
- Real time remote surveyor capability
- Remote management and diagnostic capabilities

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[www.ashtead-technology.com](http://www.ashtead-technology.com)
## Deflection Monitoring System (DMS)

### Specifications

| Measurements                          | Heading, pitch and roll  
|---------------------------------------|---------------------------
|                                       | Structure depths          
|                                       | Linear and torsional deflection  
|                                       | Pile differential pressures  
|                                       | Battery voltage, current monitor  
|                                       | Spare channels for auxiliary sensors  

| Sensors                               | Octans 4th generation 3000 solid state fibre optic gyro  
|                                       | Paroscientific Digiquartz high accuracy depth gauges  
|                                       | Keller PD-39X differential pressure gauges  

| Battery                               | 2 x Alkaline 120 A-Hr capacity independent battery packs  
|                                       | Remote battery condition monitoring  
|                                       | 300 hours minimum continuous autonomy  
|                                       | Remote power and sleep control allowing extended autonomy  
|                                       | Ultra-low power consumption in sleep mode  

| Display                               | Twin Intelligent LED display with integral RF data telemetry  

| On / off switch                       | Robust ROV operated with ROV power over-ride  

| Docking mechanism                     | Docking plate with precision tram-line alignment reference  

| Docking mechanism features            | Quick release lockdown straps providing fast deployment and recovery  

| Built-in features - subsea system     | Acoustic data link (cNode, cNode Mini S, 6G and Benthos compatible)  
|                                       | RF data link  
|                                       | ROV wet-mate connection for power and signal  
|                                       | RF, acoustic and ROV remote data access, power control and remote diagnostic monitoring  
|                                       | Inbuilt flight recorder data logging with csv format file and USB browser data retrieval for easy import to Excel, etc  
|                                       | Battery condition monitoring using subsea display or telemetry  

| System redundancy                     | Dual independent system capability with fully segregated data systems, eliminating common cause modes of failure  

| Surface software features             | Powerful intuitive graphics package running on Microsoft Windows platform  
|                                       | Multi-screen graphics allowing optimised layout of information  
|                                       | Easy to read and understand visualisation tools:  
|                                       |  • Information read-out  
|                                       |  • Analogue gauge mimics  
|                                       |  • Graphic visualisation mimics  
|                                       |  • Configurable status, warning and alarm functions  
|                                       |  • Trend graphs  
|                                       | Automated data logging in csv format  
|                                       | Single click screen capture  
|                                       | Data networking for additional client workstations  
|                                       | Data hand-off via ethernet and serial link  
|                                       | Automated dimensional control survey data service based on RF link, eliminating working at height  

| Remote support capabilities           | Remote Expert™ real time remote subsea to desk support via Internet  
|                                       | NetViewer™ remote survey desk access via Internet allowing client viewed access in real time  

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**Specifications subject to change without notice. Specific interface and performance information should be reconfirmed at time of order placement.**

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