Benefits of using V-MAP® G3

- Remote monitoring of all valve operations
- Reduces site exposure for personnel
- Automatic alerts and warnings of deterioration
- Measures compliance with acceptable criteria
- Focuses maintenance activity
- Therefore, maximises plant safety and availability and reduces costs

The third generation of V-MAP® G3 has all the benefits of the previous system but also benefits from being easier to install (in both Brownfield and Greenfield Sites), reduced weight and space requirements and reduced installation costs.

The Score Group has a 30+ year track record of delivering market leading solutions for Intelligent Valve Management™ and 20+ years of experience in delivering valve condition monitoring services / failure mode effects and diagnostic analysis consultancy. This has been coupled with our vision and of course the excellent guidance given to us by our existing customers, to show us the way forward for creating the market’s best available technology and systems for ensuring the required in-service performance and integrity of critical valves.

Available V-MAP® Case Studies Include :-

- Shell - Ormen Lange
- BP - Valhall
- Lundin Petroleum - Edvard Grieg

If you’re interested in maximising plant safety and availability and reducing costs, contact us at: midas.enquiries@score-group.com or go to www.midasvalvediagnostics.com
V-MAP G3 is a passive, non-intrusive on-line system that continuously monitors the condition of Emergency Shutdown Valves (ESDVs) and other critical valves, providing the following features:

- Evidence to Drive Proactive and Predictive Maintenance
- Unique and Bespoke System Components, designed and manufactured "from the ground up" to exactly meet asset monitoring needs
- Severe to Minor Output Alarms
- Evidence to Drive Proactive and Predictive Maintenance Models
- Wireless and Remote Installation Options

The Need

The monitoring of the condition of Emergency Shutdown Valves (ESDVs), on both onshore and offshore Oil & Gas installations, is an essential part of ensuring the safety of personnel, protection of the environment and capital assets. The failure of an ESDV to operate on demand, or fail to provide a shut off, will have a major impact.

To demonstrate that an ESDV’s performance meets the installation’s safety criteria, it is normally subjected to routines involving inspection, partial closure, full closure, and leakage tests. These routines often require special test equipment and trained personnel, and will involve a planned shutdown, thereby interrupting production.

The Solution

This need to continuously demonstrate valve condition and performance is met by Score’s V-MAP S3 systems development. V-MAP G3 is an on-line system that continuously monitors ESDV condition and the process duty under which it is operating. Data is acquired remotely, without the need for personnel to be in attendance to monitor specific ESDV tests. V-MAP G3 will also acquire data for every valve operation, including unplanned ESDV operation events, so building up a history of performance that can be used in lieu of a planned shutdown test, thereby avoiding the need to interrupt production. The valve and actuator performance trends can then be used to establish a preventative valve maintenance programme based on actual and specific valve and actuator condition.

The Development

V-MAP G3 has been developed, based on Score’s long term programme based on actual and specific valve and actuator performance trends can then be used to establish a preventative valve maintenance programme based on actual and specific valve and actuator condition.

The System

V-MAP G3 dedicated sensors are located on the valve, actuator and on the adjacent piping. The sensor types typically selected are:

- Acoustic Emission leak detection sensors
- Strain gauges to measure the torque or force required by the valve
- Pressure transmitters to monitor the actuator fluid power requirement
- Position transmitter to measure the valve stroke

The V-MAP G3 sensors are continuously logged by bespoke data acquisition units (MIDAS® DAUs). On detection of a valve operation, the V-MAP G3 server either directly outputs results in standalone installations, or - in fully integrated installations – it downloads the information from the MIDAS® DAU and typically requests the following input from the installation’s automation databases:

- Process pressures and temperatures
- Actuator limit switch and solenoid status and timestamps
- ESDV event timestamps

Once the server has collected the raw data from the various sources, it is processed in the Score bespoke Signal Processing Unit (MIDAS® SPUs) and stored. The following functions can then be performed to transform the data into information:

- Manipulation to obtain derived data
- The derived data is then analysed by use of proprietary V-MAP software, with algorithms for:
  - Raising of alerts if performance characteristics exceed pre-set alarm or notification levels
  - Comparison and trending with previous readings, benchmarks and design calculations
  - Comparison of sensor outputs to detect sensor drift or malfunction
- Provision of summary reports