

Editorial



OSMOS continues to expand: New Subsidiary in New York opened

Bernard Hodac, Chief Executive of the OSMOS group

Business developments at OSMOS remain dynamic. After winning TÜV, the Technical Supervisory Association, as exclusive licence partner in Germany, OSMOS has now opened a branch in New York.

Overseas markets can only be developed properly by being implemented locally. The same is true of servicing customers in a professional manner. The New York subsidiary will be supported in this by a number of other partners. The distribution structures will continue to be expanded systematically in the future. Activities began with a project at Ground Zero, where buildings severely damaged by the recent terrorist attacks are being monitored by the OSMOS security system.

The market for the various components of the OSMOS monitoring system in the USA is enormous. Especially in the field of preventive building and equipment security the potential is very high. In this context the product range of OSMOS has been widened with the X-Trigger, an interesting yet inexpensive alternative.

The platform below St. Antoine with the floating dyke bordering on the right.



Latest News

"Floating Dyke" for the Expansion of the Harbour in Monaco

OSMOS guards the transport



The installation of optical Strands in the interior of the object.



With 4 levels the "Floating Dock" is 19m high.

Monaco one of the leading places for super yachts and luxury cruisers with a length of up to 100 m.

A quay with a 10.000 m² platform, which will also encompass shops, is being created at the foot of St. Antoine. "Docked" to it – connected by road and a footpath will be a "floating dock" as you might call it, of enormous size: 352 m long, 28 m wide and 24 m high.

165.000 tons of steel and concrete will be used in the construction. On the side facing the sea, the dyke will be held in position by a series of anchors. Ailerons will stabilise the structure additionally functioning as wave breakers.

The first phase of the expansion of the port with the "Floating Dock" bottom left.

The "Floating Dock" in the dry dock in Southern Spain.

Even at the beginning of the last century the tiny port of Monaco was more a transit spot for goods originating in the Mediterranean area, rather than a harbour for luxury yachts. This is intended to change rapidly as a result of the planned expansion of the port: The expansion will double the capacity of the port and will make

The huge structure was built in a dry dock in the vicinity of Gibraltar. The technical challenge is amongst other things to tow this gigantic structure with ships through the Mediterranean to its destination. OSMOS received the contract to monitor this transport. In cooperation with Geocisa a total of 39 optical Strands and six inclination meters were installed in three sections for that purpose. A series of temperature sensors and water level meters complemented them. 1.7 km of cables connected the sensors and the electronics.

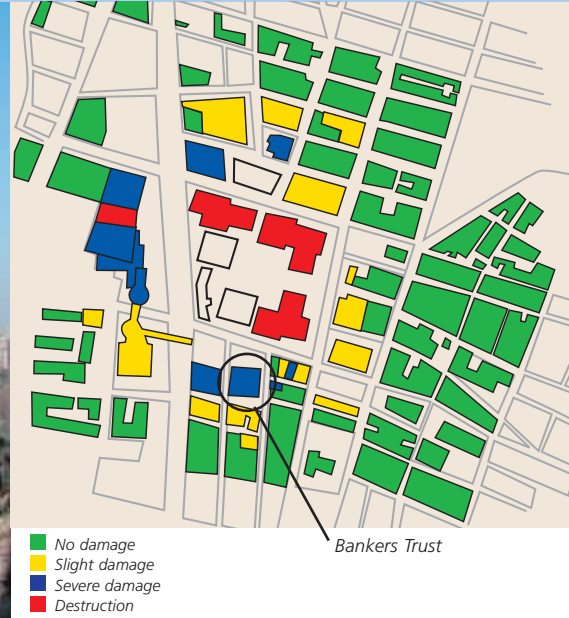
Continuous measurements by means of real-time-monitoring make it possible to obtain a detailed status report of the behaviour of the "Floating dock" at any time until its safe arrival in Monaco. A permanent installation of a monitoring system is planned once the colossus has been fastened to the new quay. The interior will offer space for a 4-level parking lot. Furthermore there will be halls, which will be used as dry docks for boats.

Further stages of the planned expansion will develop a completely new and extensive area of the port with "floating structures". A huge challenge for the engineers – and for OSMOS.

Reconstruction after the terror: The Bankers Trust Building on Ground Zero in New York



Ground Zero – a picture of destruction



Bankers Trust

September 11th.

A date, which changed the world and deeply shocked people. The act of terrorism destroyed the twin towers of the World Trade Centre in a very brief time span. Within a few seconds 600.000 tons of material caved in. The results were comparable to an earthquake with a magnitude of 2.4 on the Richter scale. Two additional buildings collapsed during the next two days. It is obvious that numerous buildings in the neighbourhood suffered severe damage from the impact of debris and shock waves.

In this situation, during October 2001 OSMOS offered the city of New York to monitor several high-rise buildings with its monitoring security system.

Installed OSMOS sensors on the appropriate levels



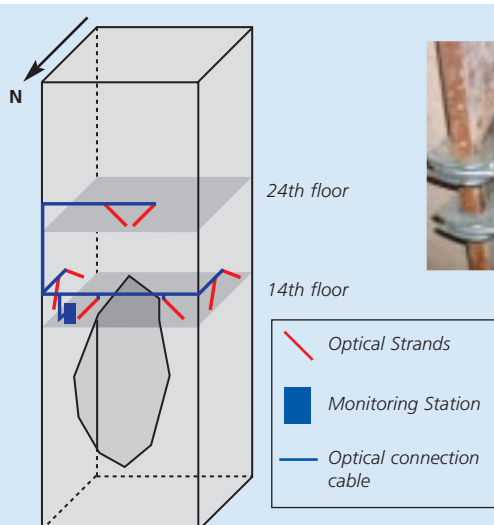
Torn-open façade of the Bankers Trust Building

The Department of Design and Construction agreed to the proposals. Furthermore: The monitoring of the buildings was requested by the city of New York during the clean up. Since then and amongst others the Bankers Trust high-rise building with its enormous gaping hole in its facade is being monitored continuously by OSMOS sensors. In the space

of a few days optical Strands were installed on two levels of the Bankers Trust Building for continuous monitoring purposes.

Clean up operations inside the building were only possible, and could only responsibly be allowed once these safety measures were in place. The question, whether the structure of the building can be repaired and thus the building be used again is easier and quicker to answer with the measurements recorded and evaluated by the OSMOS sensors. The building could reopen sooner. The clean up operations could progress more efficiently. Decisions by the owners, insurance companies and authorities could be made more quickly.

In the meantime the monitoring concept has been extended. Additional sensors, on other levels, and wind sensors were installed, which facilitate the analysis of the effects of the spring storms, for example.



Examination of a bridge in cooperation with the Federal Institute for Roads

Rolshoven bridge in Cologne



Bridge abutment on the lane leaving town.

It is well known that everything in Germany is regulated in minute detail. There is even a DIN standard regulating the procedure for checking a bridge. This specifies the examination procedure in detail. Compliance with the regulation is being monitored at the highest level by the BAST – Federal Institute for Roads.

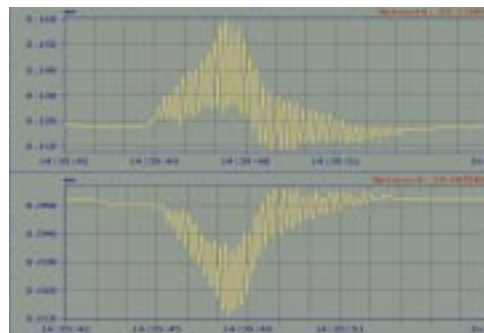
On the initiative of the TÜV – the largest technical monitoring institution in Germany – a pilot project has been started in Cologne. For some time now the Rolshoven bridge in the immediate vicinity of the TÜV has been monitored with the help of OSMOS extensometers. The procedure for checking was

agreed upon with the Federal Institute for Roads and allows direct comparison with conventional measuring technology. The experts of the TÜV, the Federal Institute and OSMOS determined all the required criteria for the measuring

and inspecting procedure for this joint project. With this objective test loads were measured and evaluated on a regular basis.



Extensometer with and without cover.

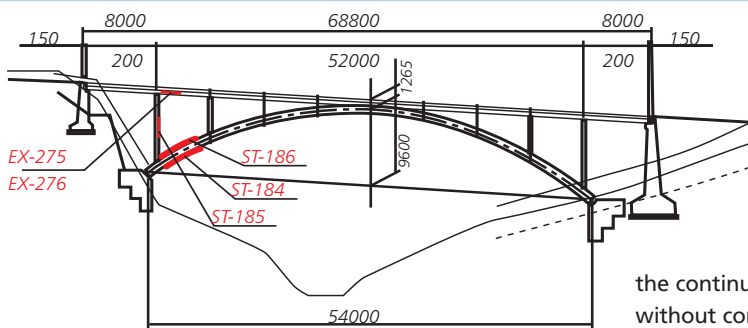


The goal is to establish an official, standardised procedure for the examination of bridges in Germany with the help of the OSMOS security system. This opens up enormous potential for the application of the OSMOS system. In this context it is planned to develop and offer a complete service package for monitoring of bridges in the future.

Graph of a typical, dynamic measurement.

Risk assessment

Monitoring of the Arakubashi Bridge in Japan



Placement of the optical Strands and extensometer.

It is a function of the OSMOS security system to identify dangers and risks. Confirmation of perfect operation of a structure also determines the possible uses of the system. As in the case of the Arakubashi Bridge in Japan this enables the authorities to make a decision on

the basis of established facts, which permits the continuous use of the bridge without concerns. During a routine bridge examination cracks due to

fatigue were noticed in one of the main supports. The appropriateness of the repairs of the bridge and the quality of the repair work were monitored and confirmed by OSMOS sensors. Two optical extensometers and three optical Strands were mounted shortly before starting the maintenance work. All sensors



Installed optical Strands on the main bridge support.

are remaining at the structure during the lifespan of the bridge. In this way a well-founded estimate of the risks could be made. It was shown that the planned repair measures were successful and that no further danger was presented by the cracks caused by fatigue.

Monitoring station

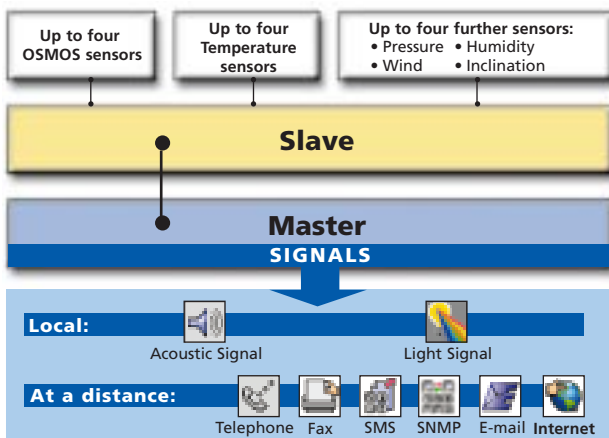
New, Multi-System Product Generation for Signal Processing



A specially developed signal-processing unit is being used for the measurement, evaluation and presentation of the signals from the fibre-optic OSMOS sensors. It is constructed in a modular way and consists of two components: the so-called master and slave. The latter is used to record the measured values of the sensors. Processing and presentation of the signals as well as their transmission takes place in the master.

The maximum expansion level of the Monitoring station allows the connection of 80 fibre-optic sensors, 80 temperature sensors and a further 80 sensors, such as sensors for the measurement of pressure, humidity, wind or angle of inclination. This means the sensors are being probed at a rate of 10 ms (100 Hz), so that dynamic measurement data are permanently available. The dynamic averages calculated from it are stored in a circular buffer, which records the last 3 to 300 seconds of measurements, depending on the setting.

Minimum Configuration of the Monitoring station.



Monitoring station inside a measuring console for interior applications with all cabling.

Static averages are derived from the dynamic averages. They can be computed for up to 24 hours.

For dynamic events it is possible to specify a borderline value, which triggers an alarm. Additionally that alarm levels can be specified because of the slow rate of change in the static values. If an alarm is triggered a local signal is produced, such as a siren or a red traffic light. In addition alarms by E-mail, SMS, Fax or SNMP traps are possible from

the master. A computer has to be connected to the master by means of a LAN-connection, in order to present the signals as x-y graphs or bar charts on the monitor.

X-Trigger in Use

Church of St-Louis in Vincennes



The church was built in the twenties on unstable ground, and in fact required much larger foundations than originally planned. Both the facade and the concrete slab in the meantime are showing significant cracks. It came to mind, that uneven settlement had taken place. As access to the base of the foundations was not possible, monitoring became unavoidable. For this reason optical Strands were installed by OSMOS in 2000.

In the meantime the results of the measurements have proven the suspicions to be unfounded. Measurements with the optical Strands have been stopped for the time being, but can be restarted at any time.

However some cracks are being monitored by the X-Trigger as a preventive measure, which constitutes an interesting alternative due to its lower costs. Additionally there is the benefit of the long service life of the X-Trigger of up to 20 years. The simple and problem free installation made a set up possible within a few hours. At the slightest alarm detected by the X-Trigger, the monitoring system with the optical Strands can go back to permanent operation.



Simple and quick installation of the X-Trigger.

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