

# Austerlitz Viaduct, Paris

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Integrated safety for structures



## Log Health Book of a transportation works



Optical Strand on a braking rod, on the upstream side



Optical Strand on the upstream anchoring beam, with cover protection



Installation team, fixing sensors under the viaduct



Monitoring Station installed on the Viaduct, near the Austerlitz Station

### Client

RATP (Paris Metro Authority) / Built Works Control and Project Owner Dpt.

### Structure

Metallic Bridge bearing the Metro Line 5, built in 1905.

2 parabolic arches, suspending deck, in Martin dead-soft steel.

Reparations in 1912 and 1931, and reinforcement works by welding in the 1930's to accommodate increasing rolling loads.

### Context

Important maintenance works on the Austerlitz Viaduct, since 2012.

### Client's needs

The client needs to check these works with an instrumentation allowing him to characterize and quantify strains by setting apart the thermal and mechanical causes (Train passings, wind effects).

### Instrumentation installed

- 18 Optical Strands (On a bracing knot, staying cables, anchorage beams, arches, braking rods, deck beams, male/female joints)
- 1 wind sensor
- 4 temperature sensors
- 2 monitoring stations

### Results

Static deformations, coming from Thermal variations, describe a normal structural behavior.

Dynamic deformations caused by train traffic are repeatable, for their amplitudes or aspects. This shows also a structural stability of the viaduct.

### Client Benefits

Thanks to the OSMOS Observation Method, the client has now a full knowledge of the real viaduct behavior, not anymore based solely on visual criteria. This allows him to target effectively maintenance works, with full safety for the users.

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LA SANTÉ DE VOS CONSTRUCTIONS