

# DCM

## Dynamic Catenary Monitoring

For many decades the planning and construction - as well as the maintenance of overhead contact lines (catenary lines) have been the basic activity of Furrer+Frey. To guarantee the quality Furrer+Frey have always followed established processes. What was missing was a tool to check the work after its completion in an efficient manner. It was therefore a matter of course for Furrer+Frey to seek ways and means of proving compliance with the set requirements both for itself and its customers. These considerations have led to the development of DCM = Dynamic Catenary Monitoring.

Another reason for the development of the DCM system was seen by Furrer+Frey in the increasing need for overhead contact line testing to establish the short, medium and long-term maintenance requirements.

DCM is intended for railways lacking a measuring equipment of their own and can be used on any gauge and traction current system, worldwide.



The mobile, self-contained unit which can be shipped around the world for use in any location on the globe:

- Sea freight approved transport container with pantograph and precision measuring room
- Single-leg pantograph Schunk WBL 85, with different pans: SNCF, SBB, DB and others... on a height-adjustable platform
- Adjustable contact force with built-in pressure controller.
- Measuring device for stagger and contact wire height.
- Detection of overlaps and supporting structures during continuous operation
- Contact force measurement as asked for in EN 50119
- Insulation level 25 kV: Measurements possible for all railways
- The accuracy of the complete measurement unit has been demonstrated by comparison with measurement equipment of SBB, DB
- High quality and high resolution travelling video camera with blending in of the measured data, the distance covered and speed as well as markers for particular points
- Slow motion picture shutter for the detailed observation of any kind of irregularity in the smallest steps
- Synchronous data storage of measured values and video pictures
- Redundant energy supply on board the DCM, equipped with air conditioning unit and heating



„Static“ measurement of the geometric position of the contact wire

- The 20' container can be mounted on any flat wagon
  - Contact wire position as measured on the pantograph is corrected with the measurement of the position of the car frame relative to the track
  - The following measurement accuracies are guaranteed at speeds ranging from 5 to 40 km/h:
- |                        |            |
|------------------------|------------|
| - Contact wire height: | +/- 1.0 cm |
| - Stagger:             | +/- 1.2 cm |
| - Contact force:       | +/- 2.0 N  |



# Measuring unit on locomotive



Furrer+Frey

FL 200/260 (T)

Conductor rail

Overhead contact lines

Railway safety control system for depots

Engines and tools

„Dynamic“ measurements to assess the current quality by measuring the contact force at a speed up to 250 km/h

- On site the measurement device and the camera are mounted on the railway operator's locomotive
  - The pantograph is fitted with wind deflector plates to correct the aerodynamic uplift depending on the measuring speed
  - The energy supply of 230 V is provided by the on-board power supply of the locomotive (1.5kVA required)
  - Test runs up to 230 km/h gave comparable and realistic results in comparison with other systems
  - The following measurement accuracies can be achieved with dynamic measurements up to 250 km/h
- |                        |            |
|------------------------|------------|
| - Contact wire height: | +/- 1.2 cm |
| - Stagger:             | +/- 1.8 cm |
| - Contact force:       | +/- 4.0 N  |





We would be pleased to present the Furrer+Frey DCM system to you. Please ask for our quotation for dynamic catenary monitoring anywhere on the globe or for our detailed DVD plus measurement reports.

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