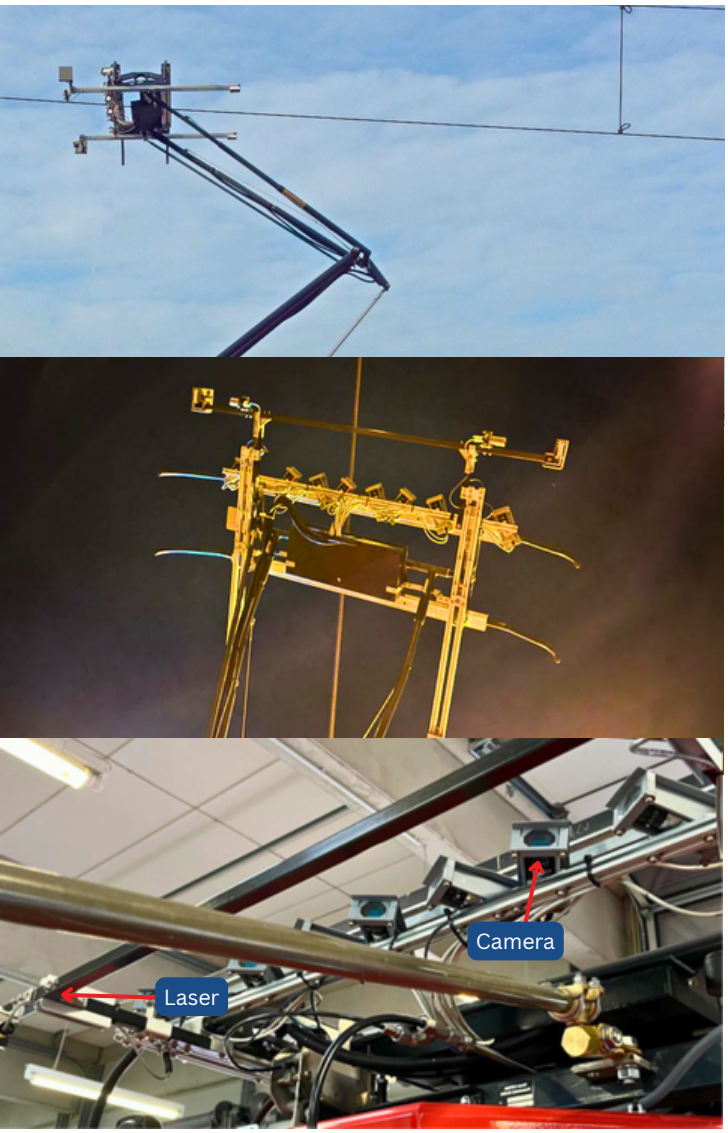
CATPRO

Contact Wire Wear Measurement System

Monitors Wear on The Contact Wire During Operation



The **CatPro** optical contact wire wear measurement system continuously monitors wear on the contact wire during operation. Even while the contact voltage is active it provides crucial support for overhead line maintenance. Unlike traditional measurement methods, CatPro significantly reduces both the manual effort required and the distance between measurement points is greatly reduced offering a more efficient and streamlined process.

CatPro enables predictive maintenance by delivering accurate data that helps forecast future maintenance needs. The system focuses on two critical variables: the remaining cross-sectional area and the twisting of the contact wire. By tracking these parameters, CatPro ensures a proactive approach to managing wear, ultimately enhancing the longevity and performance of the overhead lines.

- Integration into a standard pantograph.
- The system works when the traction voltage is switched on.
- Customer-specific galvanic isolation possible.

System structure:

- Cameras → merged to stereo-camera systems.
- 2-line lasers which specifically illuminate the contact wire contour from the outside.
- Data communication via merging the cameras at the pantograph on fiberoptics (galvanic isolation).

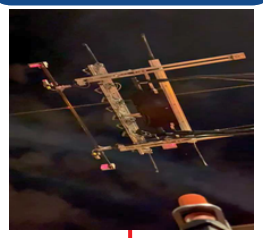
Adding to the system the OVH-Wizard enables the measurement of height & stagger:

Position: OVH-Wizard

Wizard-Connection Box (ca. 350 x 200 x 200 mm)

Wizard Computer (Laptop)

Contact wire wear: CatPro

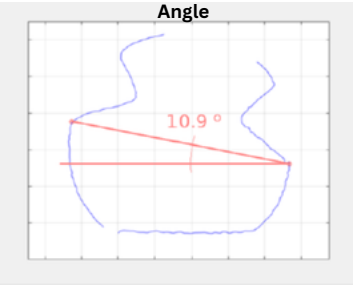


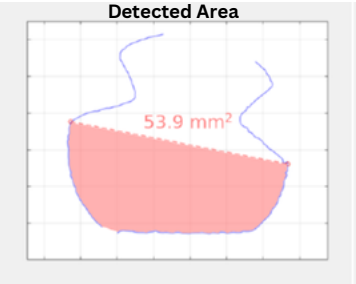
Galvanic isolation

CatPro Computer (ca. 400 x 400 x 220 mm)

Operation of the entire system via wizard software. No further training required.

Target values of the measurement:





The system detects the relevant area of the contact wire.

Installation and setup of the system

The contact wire wear measurement system mounted onto pantographs with minimal modification, adds around 10 kg. Lasers and cameras capture wear data transmitted via a compact fiber optic cable.
A galvanically isolated power supply ensures safety. A small control cabinet (approx. 400 x 400 x 220 mm) with a data-processing computer is installed in the vehicle cab, enabling real-time analysis and seamless system integration.

Target values of the measurement

The main parameters for wear measurement are the residual cross-section and torsion of contact wire, captured using an optical measurement system with laser and 3D camera technology. Standard nominal cross-sections (80, 100, 120, and 150 mm²) and custom profiles are available upon request.

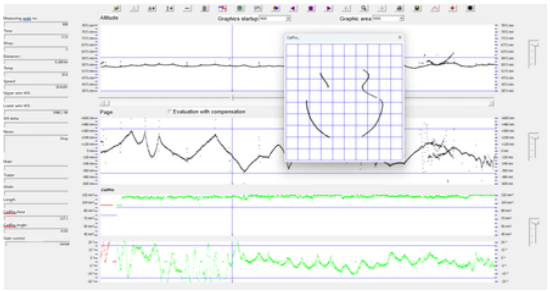
Operational measured value recording and data export

The contact wire wear measurement system can function independently or with the OVH Wizard system for positioning.

Key features include:

- Live display of profiles and values during measurement.
- Visualisation of wire positions and wear angles along the track.
- GPS data recording for accurate location tracking.
- Customisable limit values for maintenance alerts.
- Optional camera integration for better monitoring.

Accurate measurements require operation free from solar radiation interference.



The CatPro Viewer software allows users to compare routes over time to forecast areas of wear. It also enables the export of measurement data in standardised formats for integration with route management systems.

TECHNICAL DATA

Standard version lateral position range:	500mm, larger lateral positions are possible on request
Measuring frequency:	≥40Hz; next generation: >100Hz
Measuring point deviation:	≤0.1mm area accuracy: ±3% at 10
Max. twist angle:	45°
Accuracy angle of twist:	1°
Weight:	12kg

Note: Subject to change without notice. Images are for illustration purposes only.
Accuracies may vary based on site conditions and vehicle operator.

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