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HDD-E[®] ©

CAMEROV[®]

Patent 1254318

AUTOMATIC MEASUREMENT SYSTEM WITHOUT CONTACT FOR CATENARY

NO INTERRUPTION OF RAIL TRAFFIC

STRENGTHS

HELP FOR TECHNICAL MAINTENANCE VISITS

- Can be used in any climatic condition (rain, sun, +50°C to -40°C...)
- Section insulator (SI)
- Severing, ...

AUTONOMOUS & VERSION : 1500 POINTS AND MORE

- 3 mm accuracy at 9 m high
- **Weight** : 1,9 kg
- Handling by an agent

- ▶ Height
- ▶ Stagger
- ▶ Cant
- ▶ Track gauge

Nomination for Innovation Awards Infrastructure



Approval N° DPI 15091

2 OPTIONS OF USE

- On a pushed hand trolley
- On vehicle



Trolley by -40°C



Elan



Matisa



In the past

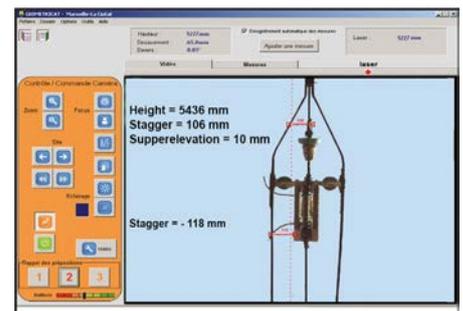
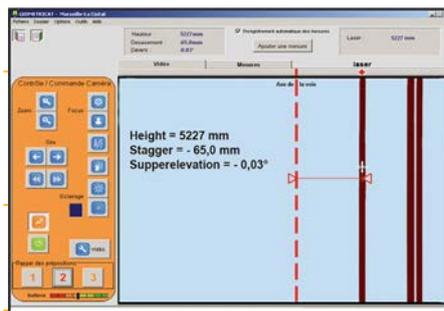
HIGHT RESOLUTION COLOR CAMERA



- **Optical zoom x 10** : Remotely controlled
- **Focus** : Remotely controlled
- **Backlighting function**
- **Resolution** : 768 x 576 pixels
- **Variable lighting for nightly operations**
- **Laser range 10 meters**
- **Battery life** : autonomy 1500 measures
- **HDD-E® box**
(L x W x H = 250 x 180 x 115 mm - Weight : 1,9 kg)
- **Trolley Weight** : 15 kg

REAL-TIME MEASUREMENTS

- **DIRECT MEASUREMENTS** by selection of the contact wire by clicking on it on the screen
- **HEIGHT**
3 mm accuracy at 9 m high
- **STAGGER**
Accuracy lower than 3 mm
Range ± 400 mm, + if necessary
- **CANT** : $\pm 0,5$ mm or $\pm 0,02^\circ$
Range $\pm 8^\circ$ or ± 200 mm
- **TRACK GAUGE** : ± 2 mm



DYNAMIC MEASURES

GEOMETRICAT® SOFTWARE ON PC TABLET

- CAMEROV® HDD-E® control via USB
- Recording measurements with picture makings
- Publishing reports with comments from a library of predefined comments in PDF
- Excel file generation of all measurement
- Interactive report created on CD or DVD

OPTIONS

- ▶ Additional batteries to increase CAMEROV® HDD-E® life
- ▶ Lateral telemeter
- ▶ GPS localisation
- ▶ Odometer (measure of electronic or mecanical distance)



BENEFITS OF USING THE CAMEROV® HDD-E®

(PATENT N° 1254318)

(APPROVAL SNCF N° DPI 15091)

UTILITY

- The **CAMEROV® HDD-E®** measures the Height, Stagger of the catenary and tracks Cant, with the optional : Track Gauge measurement (Vehicle version)

DOUBLE USE

- On trolley or manually pushed manipulated ruler
- On rail vehicle / road, in this case the **CAMEROV® HDD-E®** can always be removed for use on truck in case of problems with the vehicle.

SECURITY

- The measurement is non-contact and therefore **does not require shut down**, the **contact wires can stay live**
- **No danger to the operator**

USE IN ANY CIRCUMSTANCES ON ANY NETWORK

- Network 750V, 1500V, 3000V, 25000V, DC or AC
- Tunnel and tramway
- Can be used in any weather conditions (rain, sun, snow etc.)
- **Suitable for extreme climatic conditions (used at -40°C in Canada / +40°C in India)**

QUICK MESUREMENT

- Dynamic measurement
- Regular and point measurement with stationary vehicle rail / road or truck / ruler
- Dozens of measurements can be made per shift

ACCURATE AND RELIABLE

- Details on the misalignment + 3 mm, height + 1 mm, on the slope + 1 mm
- No transcription errors, measurements are stored in the PC or Tablet

EASE OF USE

- **A single click on the wire screen picture triggers measures**
- The ability to prepare the measurement plan before rail traffic on site keeps recording time to a minimum
- Automatic editing of reports before the end of the shift

HUMAN RESOURCES

- One technician is sufficient to use it

MAINTENANCE

- No or very little maintenance
- Consumables : battery every 2 to 3 years

CALIBRATION (IMPORTANT)

- By flipping on the track for a simple check
- Every 2 to 3 years in case of intensive use with the trolley (return to our workshop - Calibration bench)



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USE ON TROLLEY

(REGISTRATION 15092 DPI)

ERGONOMICS

- Easy to carry with an all up mass of 16.9 kg
- The folding ruler will fit into the trunk of a light vehicle
- The operator remains standing while measuring thus avoiding uncomfortable positions
- No effort to push the trolley

AUTONOMY

- Several hundred measurements can be made between charges

SECURITY

- Easily portable allowing instantaneous removal from the rail line
- Braking type «dead man»



Specifications of carrying box :

- . Length : 950 mm
- . Width : 450 mm
- . Height : 270 mm
- . Weight : 12,5 Kg

Storage :

- . Trolley
- . HDD case
- . Tablet or Laptop

USE VEHICLE RAIL / ROAD

SET UP

- The **CAMEROV® HDD-E®** is positioned on the front / rear bumper of the vehicle, and additional laser sensors close to the wheel / rail
- The installation is very fast, on preassembled gear
- The withdrawal and the regular establishment take only a few seconds

ERGONOMICS

- The technician can operate from the cockpit in the best comfort conditions

AUTONOMY

- Unlimited, the **CAMEROV® HDD-E®** can be supplied by the vehicle

MAINTENANCE CARE

- The **CAMEROV® HDD-E®** and laser enclosures are protected by additional aluminium housings to avoid any kind of shock or ballast projection
- **The risk of major breakdowns** related to the use of a telescopic pantograph and devices (compressor, cylinders, pneumatic hoses, generator ...) are nonexistent with **CAMEROV® HDD-E®**

