



Reducing your electricity consumption



CATenergy

Energy & traction control and protection



Highly accurate unique all-in-one modular and scalable solution for energy measurement and traction control



CATenergy AC/DC sensors and control unit

Highly-accurate system for energy billing and saving:

- qualified under the most severe conditions
- world wide quality reference
- 30 years life-time tested

CATenergy is a system to measure high current and high voltage at the trains for energy and traction control management, both for new-built and retrofit railway applications.

- Highly accurate energy calculation
- Complete set of outputs for traction control
- Energy and maintenance data collection
- Data communication, processing and monitoring

Weight and space saving

CATenergy solution can save installation space and weight replacing two transformers or sensors and is more compact as does not require to multiply the insulation distance between the different equipment to prevent electrical arc.

Classic solution

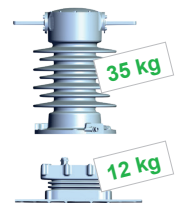


Explosion risk

Potential and current transformers needed

Not compliant with energy measurement system

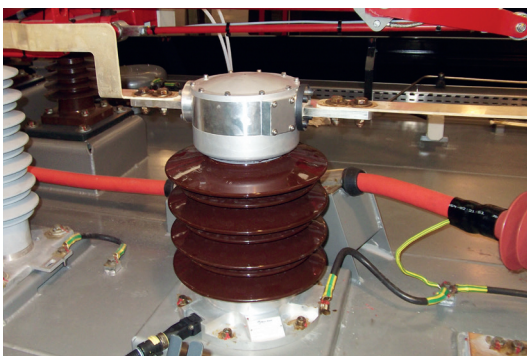
CATenergy solution



No explosion risk

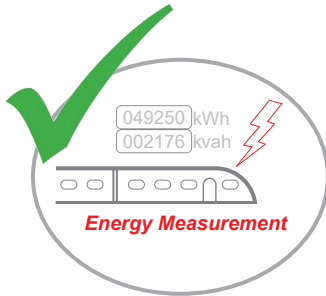
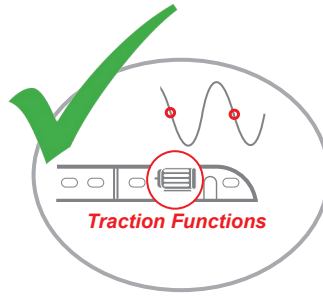
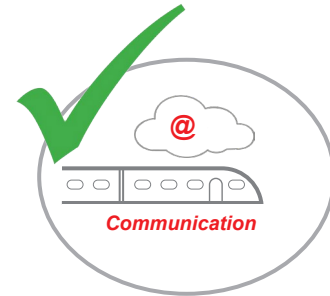
Potential and current transformer functions in one sensor

Compliant with energy measurement system



Customer benefits:

- + All-in-one cost effective solution
- + Weight & space saving for easy integration
- + Highly reliable
- + Simplified roof architecture
- + Easy integration on any retrofit and new-built trains
- + Outstanding accuracy
- + Modular design

**ACCURACY****INTEGRATION****MANAGEMENT****Specifications**

Energy measurement	Essential train function	Data analysis/diagnostic
<ul style="list-style-type: none"> Compliant with TSI Loc&Pas, EN 50463 & IEC 62888 Voltage & current & energy calculation AC sensor: <ul style="list-style-type: none"> - Accuracy << 1.5 % for AC Energy - AC: 25 kV, 15 kV, 12 kV / 16.7 Hz, 25 Hz, 50 Hz, 60 Hz, 50 A to 800 A Weight: 35 kg Dimensions: 450 x 300 mm DC sensor: <ul style="list-style-type: none"> - Accuracy << 2 % for DC Energy - DC: 3 kV, 1.5 kV, 750 V, 600 V, 750 A to 5000 A Weight: from 8 to 12,5 kg Dimensions: 450 x 150 x 100 mm Digital output Temperature: -40 °C...+70 °C Severe condition insulation test Ageing test Installation: internal or external 	<ul style="list-style-type: none"> Compliant with TSI Loc&Pas, EN 50463 & IEC 62888 Voltage & current & Energy calculation AC sensor: <ul style="list-style-type: none"> - Accuracy << 1.5 % for AC Energy - AC: 25 kV, 15 kV, 12 kV / 16.7 Hz, 25 Hz, 50 Hz, 60 Hz, 50 A to 800 A DC sensor: <ul style="list-style-type: none"> Accuracy << 2 % for DC Energy DC: 3 kV, 1.5 kV, 750 V, 600 V, 750 A to 5000 A Digital output Temperature: -40°C... +70°C Severe condition insulation test Ageing test Installation: internal or external 	<ul style="list-style-type: none"> Data collecting service solution Secured data server Data base storage Application service provider Web access to data base (energy, voltage, current, diagnostic, localization, maintenance, etc.) Graphic data presentation tools Train and Energy mapping History and temporal analysis Status detection and temporal analysis Files export for processing a report Geolocalization and route display Condition based maintenance Custom application

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