

OHL Monitoring

Overhead line



Overhead Line (OHL)

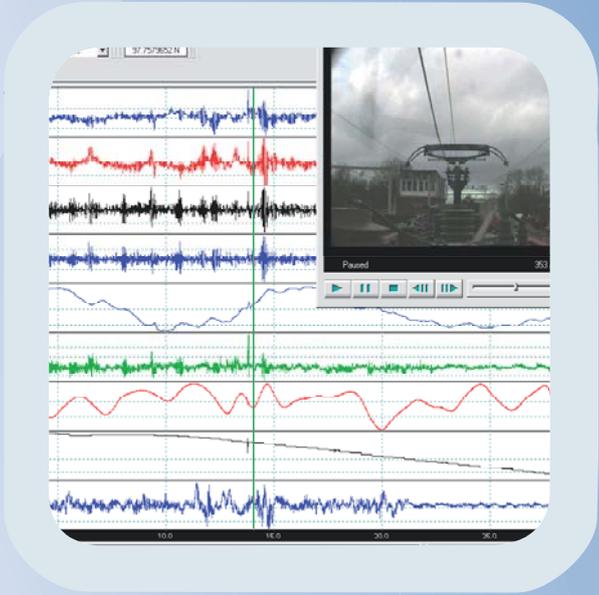
Overhead line (OHL) systems must be regularly inspected in order to ensure their geometry is correct and prevent the risk of de-wirement.

De-wirement can occur if the contact wire tensioning or vertical alignment is incorrect, leading to excessive forces on the wire, causing it to break as the pantograph passes.

Alternatively, incorrect lateral alignment of the wire can result in it slipping under the pantograph head, pulling down the catenary. The resulting damage can have a disastrous effect on services, resulting in lost revenue and customer confidence, in addition to the cost of repairing the damage itself.

Balfour Beatty Rail has developed a data acquisition system for measuring the interaction between pantograph and overhead line that is compliant with the requirements of EN 50317. The system consists of accelerometers and load cells integrated into the pantograph without affecting its aerodynamic performance.

Safe transmission of data from current or non-current carrying pantographs is achieved by either optical isolation or radio telemetry. The system can be stand-alone or the outputs integrated with other on-board measurement systems such as track geometry.

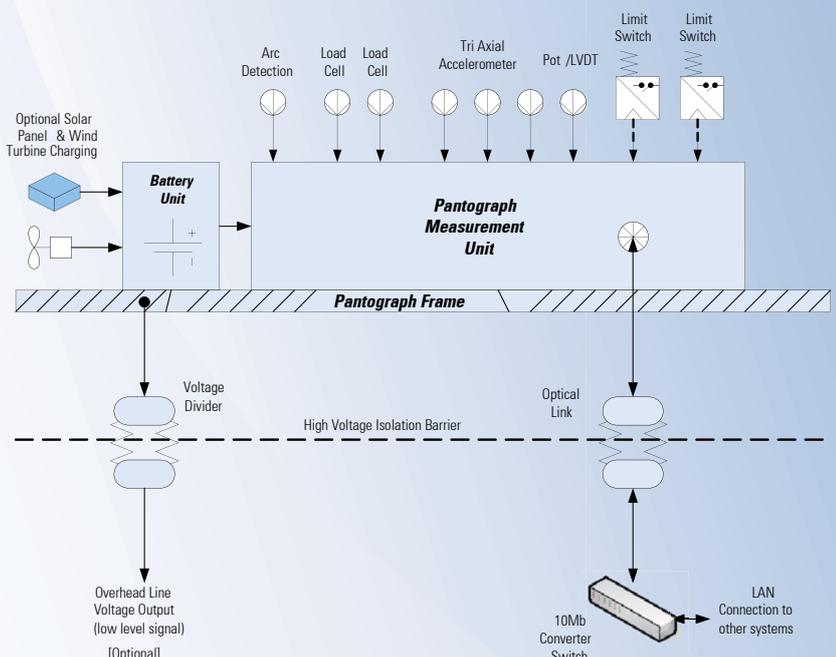


Measurements Available

Primary measurements include pantograph Impacts, Stagger, Contact Force and Contact Loss are measured utilising a combination of precision load cells embedded into either side of the pantograph mounting arrangement and accelerometers mounted directly onto the pantograph head. Additional measurements consist of wire height, arcing and line volts (ac or dc). To complement measurement data, synchronised video can also be incorporated (schematic of the system is shown below).

Location of fault data is achieved by embedding a GPS reference alongside recorded OHL data. Improved accuracy may be gained by integrating with our in-house location system. Further improvements in accuracy may be gained by utilising our infrastructure asset mapping software.

A miniature system for unattended operation on service vehicles is also available. This system can be used for detection of impact exceedances and notifying the user as they occur. Data is transferred using GPRS and stored onto a local server network.



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