

**OVERVIEW**

Transmission Dynamics® developed the PANDAS® Wireless Accelerometer transmitter to be installed in the harshest of rail environments. The transmitter is typically mounted on the pantograph or shoe gear in close proximity to 25,000 V. The transmitter is an edge processing device fitted with 6 degrees of freedom, high bandwidth accelerometer, gyroscope and temperature sensor.

The transmitter communicates locally to a gateway that transfers the acquired data to the Cloud. The data is made available to the clients on the secure Global Data Network® (GDN®) where the data can be viewed and exported remotely if required.

The transmitter will trigger following exceedance of a pre-determined threshold. Once triggered, a report detailing the event (timestamp, GPS coordinates, etc) is automatically sent to key stakeholders via email or SMS. The transmitter mounting arrangements is typically designed bespoke for each application. In some cases, the device is clamped around the pantograph horn, or utilising existing bolts on the pantograph head/shoegear.

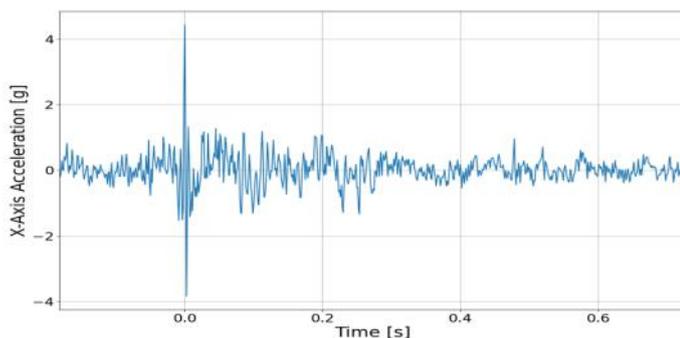


Figure 1. Impact event time-domain data

**GENERAL SPECIFICATION**

Communication	Bluetooth licence-free frequency range of 2.4 GHz
Range	30 m (open space)
Power	Replaceable 3.6 V battery
Life	2.5 years per battery cycle
Size	Typically 40 x 20 x 25 mm (excluding mounting bracket, design dependant on pantograph/shoegear)
Weight	Typically between 60 - 125 grams
Temperature	-40 °C to + 85 °C
IP Rating	IP69K
Logging Modes	Events mode (trigger adjustable) Flip detection (trigger adjustable) Time domain mode (adjustable)
Sampling Rate (Events mode)	400 Hz (0.36s pre; 1.46s post trigger) 800 Hz (0.18s pre; 0.73s post trigger)



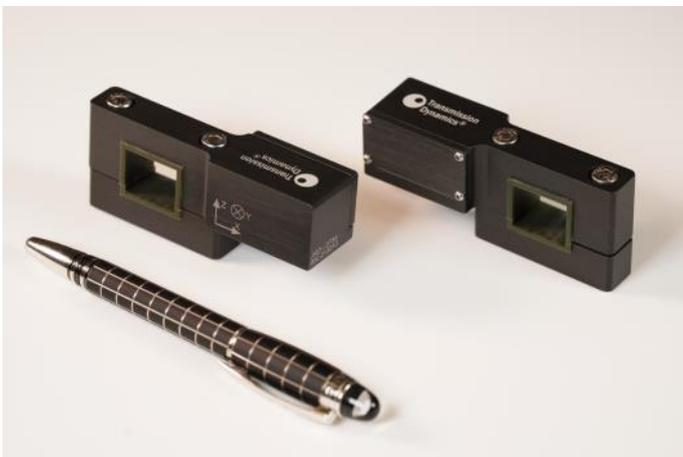
Figure 2. PANDAS® Wireless Accelerometer

**STANDARDS COMPLIANCE**

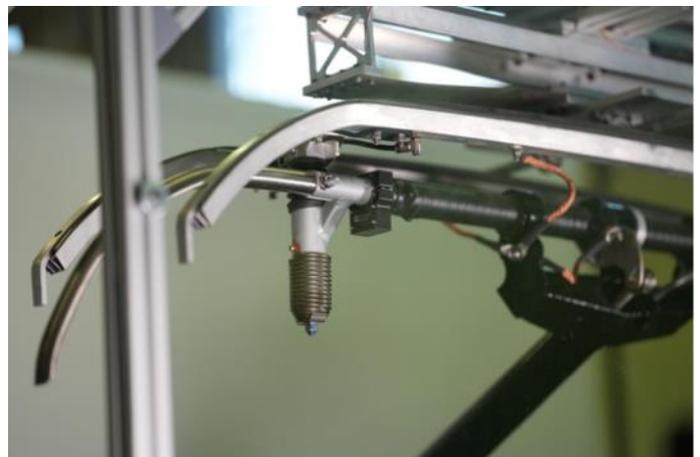
Conducted Emissions	EN55016-2-1:2014
Radiated Emissions	EN55016-2-3:2010
Shock and Vibration	EN 61373:2010
Electrostatic Discharge	EN61000-4-2:2009
Radiated Susceptibility	EN61000-4-3:2006
Fast Transient Burst Susceptibility	EN61000-4-4:2012
Surge Immunity	EN61000-4-5:2014
Conducted Immunity	EN61000-4-6:2014



PANDAS® Wireless Accelerometer bracket assembly



Bespoke PANDAS® Wireless Accelerometer clamp design



PANDAS® Wireless Accelerometer clamp assembly



Roof-Mounted RSRU®



Shoegear mounting arrangement