

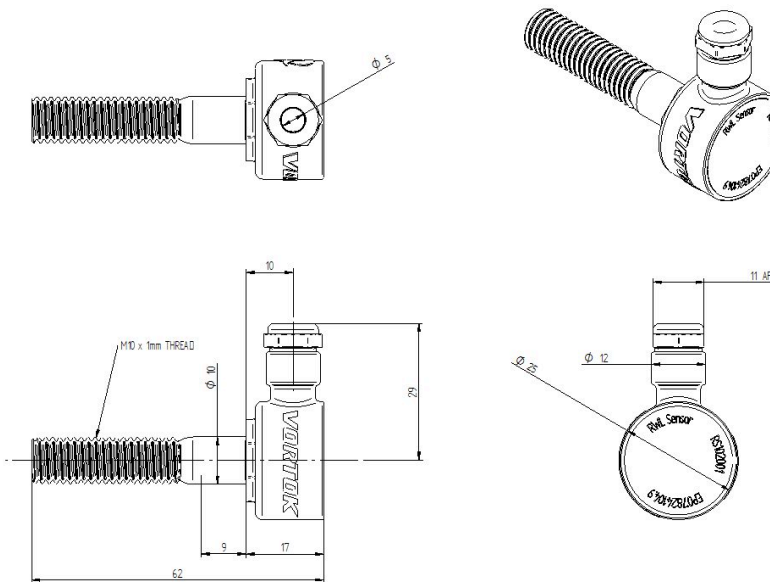
Multi-Sensor

Multi-Parameter Sensor for Monitoring Stress in Railways

Description

Conventional track-based monitoring systems face many challenges; physical bulk, unfriendly connection systems, poor mounting techniques and fragility are the main problem areas. The Vortok Measure & Detect sensor integrates three measuring technologies into a single compact, rugged stainless steel body. Inserted into a single 10mm diameter hole in on the neutral axis of the rail web, the Multi-sensor measures rail force in a vertical or horizontal plane, rail acceleration both vertically and laterally as well as rail core temperature.

Dimensions



Wiring

Cable

Screen
Pink
Grey
Green
White
Blue
Yellow
Brown

LS0H 7 core with overall screen
Terminated at computer
5v dc Power
0v
Strain +ve
Strain -ve
Temperature
Accn X +/-70g (og=2.5V)
Accn Y +/-35g (og=2.5V)



Vortok - Measure and Detect

VORTOK International is the trading name of the Multiclip Company Ltd
The Multiclip Company Ltd is a member of the PANDROL Group of Companies

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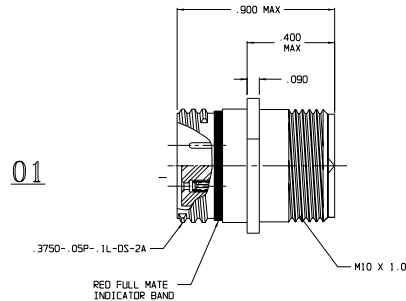
Website: www.vortok.co.uk



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Connector Option

The Multi-Sensor can be supplied with a 7-pin connector in place of the cable gland. Details available on request.



Specification

Amplifier	x100G instrumentation amplifier
Temperature	Solid state precision sensor +/- 1 degree 10mv per degree K
Temperature Range	-40 to +85 degrees Celsius +/- 0.5 degrees
Acceleration	2 axis MEMS (4000g overload) Vertical +/-70g (og=2.5V) Horizontal (Lateral) +/-35g (og=2.5v) +/- 1%
Strain	RWL 350 Ohm (x100 amplification)
Load Range	+/- 40 Tonnes vertical shear +/- 80 Tonnes tension / compression +/- 1% when calibrated
Sensor Body	Cast Stainless Steel
Sensor barrel	10mm
Weight	50g
Supply Voltage	5v dc
Stain offset imbalance	less than +/- 0.75v
Sealing	IP68
Installation	drill - ream - insert H7 interference fit less than 10 minutes per sensor

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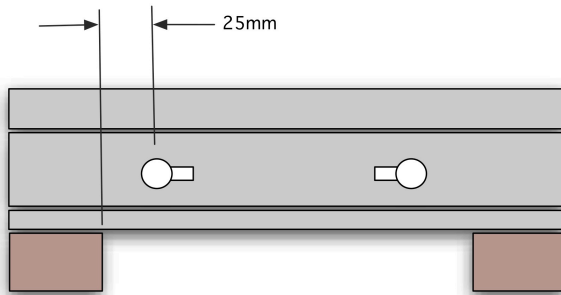
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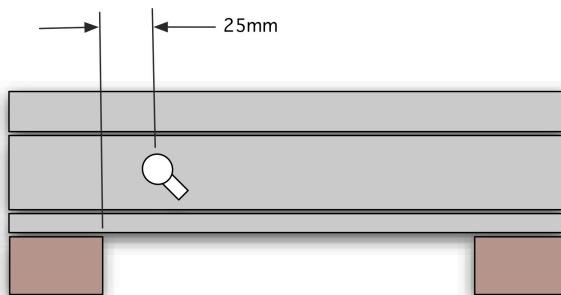
Applications

Train Weighing or Wheelflat Detection - Sensors can be placed with their cable outlets horizontal. In this orientation the strain gauge measures vertical shear and the accelerometers measure vertical and lateral acceleration.



Sensors should be placed, at least, 25mm inboard of the rail supports.

Stress-Free (Neutral) Temperature - A Sensor is placed with its cable outlet at 45 degrees from Horizontal. In this orientation the strain gauge measures rail tension and the accelerometers measure vertical and lateral acceleration. The temperature sensor measures rail core temperature coincident with the strain gauge, allowing accurate tracking of temperature, induced rail strain.



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Link-up
Certificate Number: 1813

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Standards

The MultiSensor has been designed to conform with the following standards:

Environmental service conditions “TX” as specified within BS:EN50155

Electrical Category “Class S2” specified in BS:EN50155 shall apply.

BS6853 “Fire Precautions in the Design and Construction of Passenger Carrying Trains” for category 2 classification vehicles.

BS:EN50121 Railway applications. Electromagnetic compatibility. Emission and immunity of the signalling and telecommunications apparatus.



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