

Express-Weigh WIM

a high accuracy weigh-in-motion system
using in-road sensors





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The ARRB Express-Weigh WIM system is a highly accurate data acquisition system that integrates Kistler LINEAS quartz sensors with a custom built data logger to collect vehicle volume, speed, classification and axle mass data.

The quartz sensors are installed into slots cut directly into the road surface (asphalt or concrete) and are grouted with a compound of epoxy and silica sand. The elastic and thermal properties of the grouting material closely match those of most road surfaces, assuring optimal performance under all conditions.

Applications

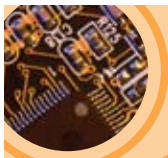
- Detecting overloaded vehicles on the road network
- Acquiring vehicle data for traffic statistics
- Verifying optimal load distribution between wheels, axles and axle groups
- Screening to divert overloaded vehicles for enforcement weighing
- Gathering data for road design



Features and benefits

- ↘ The Kistler LINEAS quartz sensors have highly stable electrical and mechanical properties
- ↘ Wide measuring range; passenger vehicles can be weighed as accurately as heavy vehicles
- ↘ Measures the axle mass of vehicles travelling at highway speeds
- ↘ Works reliably over a wide pavement temperature range
- ↘ Low maintenance costs
- ↘ Sensors are flush with the road surface
- ↘ No induction loops required
- ↘ Conforms to ASTM E1318-02 Type 1 requirements
- ↘ Total monitored lane width is 3.5 m
- ↘ Long life of system





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Specifications

WIM Sensors	Kistler LINEAS piezo-electric sensors
Monitoring equipment	ARRB Custom built data logger
Number of lanes per logger	2. Multiple loggers may be integrated in the one roadside traffic cabinet for larger sites
Conformity	Conforms to ASTM E1318-02, Type 1 requirements
Weighing measurement precision	Within $\pm 10\%$ of the static gross vehicle mass with 95 % confidence
Speed	5 km / h up to 110+ km / h
Data storage	Data is stored as time stamped axle records
Data storage capacity	500,000 axle records per lane (approx)
Vehicle classification	Austrroads (12 vehicle classes)
Sensor operating temperature	- 50°C to 80°C
Communications	Modem for remote downloading RS232/RS422 serial port for local downloading

Data logger

Location	To be housed within a roadside traffic cabinet
Dimensions	430 mm x 300mm x 230 mm
Weight	14 kg
Environmental rating	IP65
Operating temperature	0°C to 60°C
Power Supply	12V DC / 1A powered from mains supply
Site requirements	Motorway conforming to construction specification Mains electricity Telephone line for modem Roadside traffic cabinet
Reports	Downloaded data is processed into DCD file format

Note: ARRB Group Ltd reserves the right to change these specifications without notice. Whilst every care is taken in preparing these specifications, ARRB recognises that there may be classes of surface and applications for which the device has not been tested, and for which the device may not meet the stated specifications.

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