

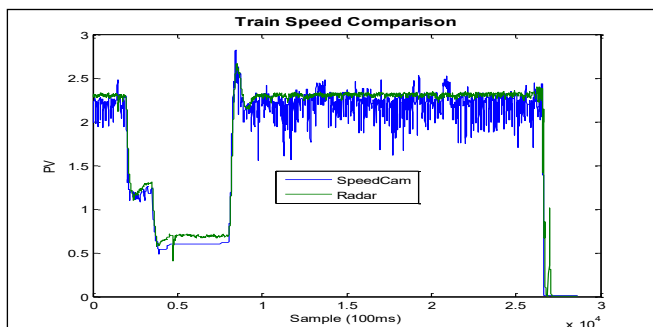
Train Load Out Ultra Low Speed Radar (iTLO-3001)

Accurate and reliable train speed measurement is crucial for wagon loading weight control and automation. Traditional train speed cameras are not sufficiently accurate with accuracy often compromised by sensitivity to environmental factors such as light and dust. Calculations of train speed from track switches is noisy, requiring use of a heavy filter and compromising accuracy which is lost during changes in train speed.



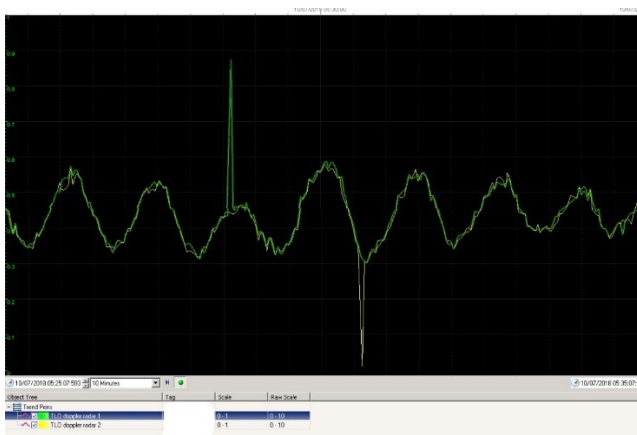
Train speed calculated from track switches, based on the time that a fixed length wheel passes through the switch(es). These measurements are inaccurate and noisy.

(Left: Displays train speed calculated from track switches)



Speed cameras track train speed by using image pixel movement of the train. This method requires a heavy filter to remove gaps between wagons. Speed cameras are prone to light change and dusty environments.

(Left: Train speed comparison – iTLO 3001 Radar in green versus speed Camera in blue)



A well-known German speed radar often suffers speed measurement irregularities. This causes problems for the automated loading system and often impacts production loading activities and reduces out loading efficiency.

The iTLO-3001 uses an innovative speed algorithm and samples a large amount of data, providing reliable and accurate train speed measurement.

(Left: Well-known German speed radar suffers speed measurement issues)

Accurate in all harsh environments

The iTLO Ultra Low Speed Doppler Radar provides excellent accuracy and is designed to be robust in any industrial environment. Designed for slow moving wagons in a train load out system or any applications requiring high resolution slow to medium range speed measurement or motion sensing, the iTLO uses specialised signal processing for accurate and reliable motion speed detection.



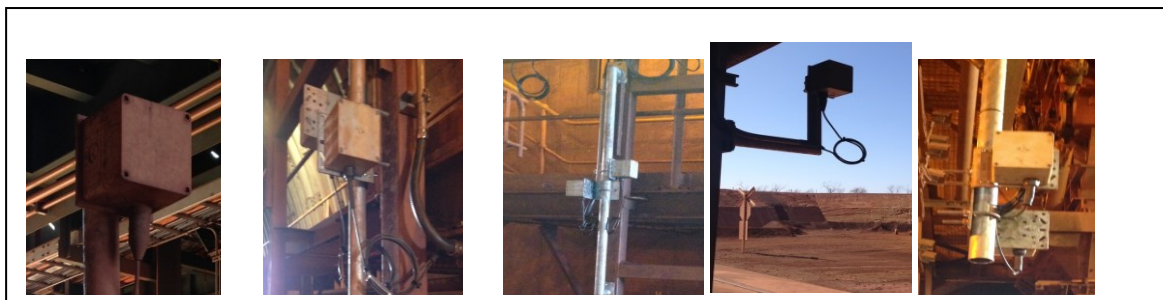
The standard iTLO 3001 Speed Radar module is IP66 rated for most of industrial environments. IP68 rated module is also available

Flow Power and Long Life

The iTLO 3001 Low Speed Doppler Radar is a milli-power Digital Signal Processing (DSP) based K-band radar for non-contact speed measurements. The very low power use enables it to extend its electronics life.

Field Proven

The iTLO 3001 Low Speed Doppler Radar has been utilised successfully in several mine sites of high profile mining companies to improve efficiency and reduce costs. The photos below show a number of installations across Australia.



Low Cost

Compared to widely utilised traditional speed cameras, the iTLO 3001 radar is only a fraction of the cost.

High update speed and resolution

Measurement update every 80 ms with 3 decimal points of accuracy with 0.01 km/hr measurement resolution.

Features

- Lowest power usage K-Band Ultra low speed Doppler radar at 0.1 Watts
- Measures speeds down to 0.2kph and up to 11kph (High speed version iTLO 3002, 2-160 kph is also available)
- High resolution ASCII speed output with 3 places of decimal points
- FCC pre-approved with CE mark
- Fully configurable via RS232 serial port for all settings
- Optional communication protocols: such as Analog, Ethernet, Profibus...etc.

SPECIFICATIONS & RECOMMENDED OPERATING CONDITIONS

VCC	6 to 18VDC (12VDC for optimal performance)
ICC@12VDC	9 mA (0.1 Watts)
Radar RF out	5 mW maximum
Radar fcenter	24.125GHz or 24.200 GHz
Operating °F (°C)	-40 (-40) min to 185 (85) max
Pickup Distance	30+ meters in most cases
Speed Range	±0.2kph to 11kph (high speed version iTLO 3002 Radar 2-160 kph is also available)
Internal Resolution	0.001kph maximum
Beam Angle	38°x45°
Beam Polarization	Linear
FCC ID	TIASS300
CE Mark	Yes
Dimensions	Boxed 100 x 100 x 100 mm
Weight	0.3Kg approx.