SAFEZONE®

LOW COST WIRELESS RAILWAY LEVEL CROSSING SOLUTIONS

RAIL CROSSING WAY STOP

WRX

'Wireless Railway Crossing'

WARNING SYSTEM

OVERVIEW

A low cost, proven, wireless 'Railway Level Crossing Warning' solution

SafeZone is an Australian developed warning system, designed to reduce the risk of crashes and near misses at railway level crossings. It comprises a suite of wirelessly networked, radar-activated components with fail-to-safe capabilities that allow 'passive' warning systems to be upgraded to 'active' ones. Together, these 'active devices' allow automated warnings to be delivered to road users, that more effectively notify them that a railway crossing is in use.

SafeZone includes the following modular, wirelessly networked building blocks:

- Wireless **'Train Detection Radars'**
- Wireless **'Active Wig-Wags'** (red flashing signals, i.e. RX-5s), and
- Wireless **'Active Advance Warning Signs'** (signs with amber flashing lights, i.e. RX-11s)

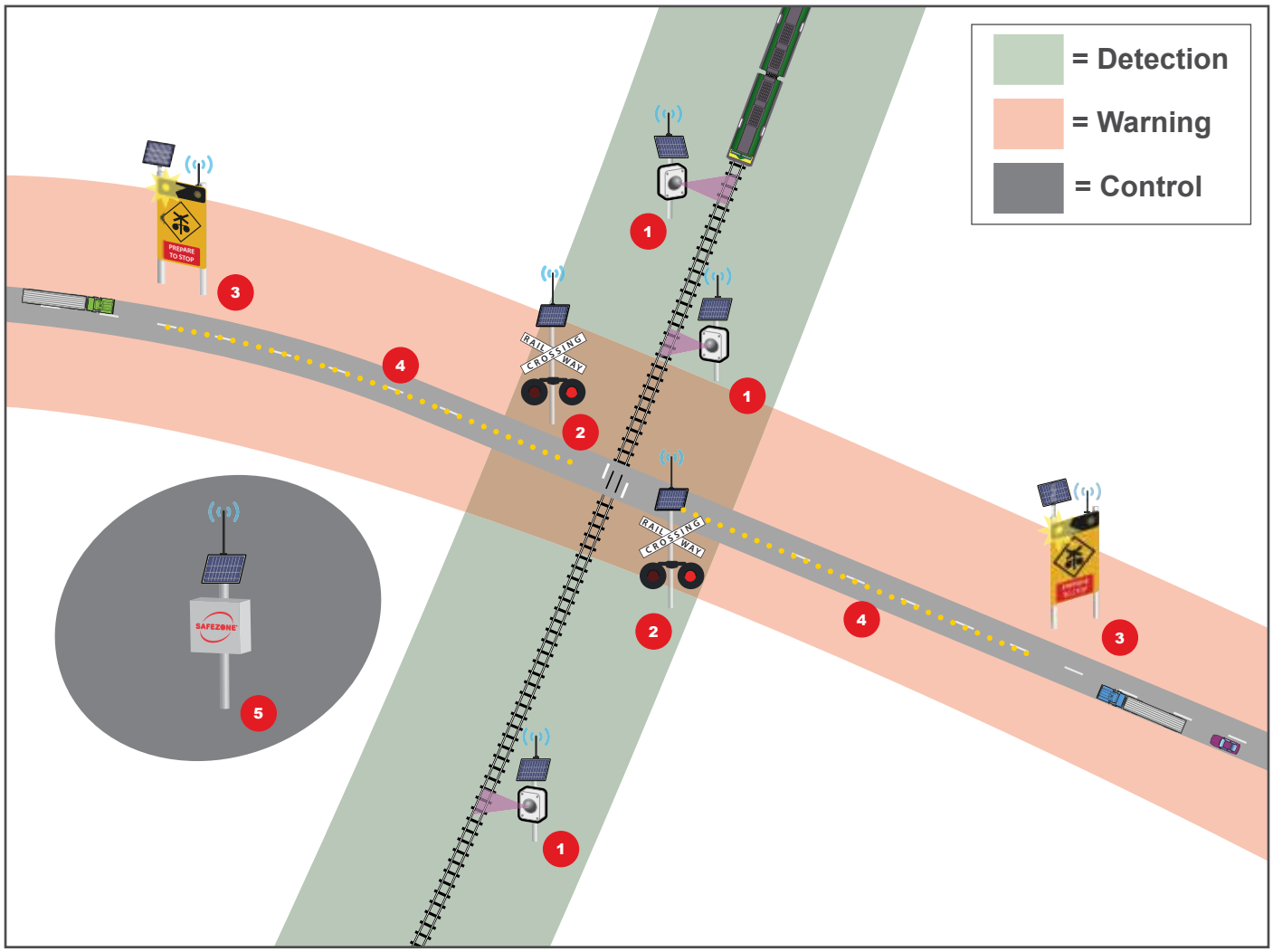
These can be combined to meet client and site-specific requirements in order to deliver AS/NZS 1742.7 (and other standards) compliant 'active control' solutions. **SafeZone's** modular architecture, 'fail-to-safe' features, and remote monitoring capabilities make it ideal for retrofits to 'passive' rail crossing warning systems in lightly trafficked remote areas, as well as at crossings in higher traffic urban areas.

Additional (optional) warning elements such as Wireless **In-Road Alert Beacons** (flashing lights) make **SafeZone** the most flexible, fully featured approach to improving railway crossing safety. Because it's a completely wireless solution and all building blocks are solar or battery powered, a **SafeZone** solution can be far more rapidly deployed for significantly less cost than traditional treatments.

The resulting lower 'whole of life' costs, combined with its comprehensive features and superior flexibility, make **SafeZone** a superior 'value for money' solution.

Features	Benefits
Mix of RX-5 signals, RX-11 signs & in-road flashing lights	Modular approach to creating solutions for almost any application
Secure wireless communications between all elements	Lower costs of installation and ownership
Solar powered RX-5s and RX-11s	Further reduces costs of installation and ownership
'Fail-to-safe' operation	Optimises safety
Train Detection Radars	Allows installation at crossings without existing detection systems
Retrofittable Active Wig-Wags and AAWS modules	Suitable for integration with existing 'passive' control elements
No connection required with systems within rail corridor	Lowers costs, speeds installation, enhances fail-to-safe capabilities
AS/NZS 1742.7 compliant	Allows designers to implement standards compliant solutions
Modular, customisable architecture	Can be adapted to almost any existing or new rail crossing system.
Optional in-road flashing beacons	Enhances active warning capabilities

TYPICAL RAIL CROSSING IMPLEMENTATION



	DETECTION	WARNING			CONTROL
	1	2	3	4	5
Building Blocks	Train Detection Radar (TDR)	Active Wigwag	Active Advance Warning Sign	In-Road Alert Beacon (IRAD)	Alert Device Controller (ADC)
Sign Type	N/A	RX-5	RX-11	N/A	N/A

SYSTEM BUILDING BLOCKS

DETECTION SYSTEM

1 TRAIN DETECTION RADARS (TDR)

These units are installed beside rail tracks on the approaches to a railway crossing, as well as at the crossing. When a train is detected, signals from the radar units are received by the network's Alert Device Controller (ADC). This then activates the active warning systems (installed as required) in that network. TDRs are solar powered and use proven radar sensors.

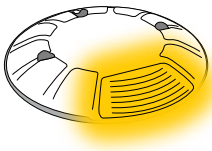
ACTIVE WARNING SYSTEMS

2 ACTIVE WIG-WAGS (RX-5)

These units are comprised of red flashing warning signals and a wireless repeater. They can either be retrofitted to existing 'passive' signs (e.g. Give Way and Stop signs), or supplied as complete units with signs for new RX-5 installations. They are installed at the railway crossing and feature fail-to-safe capabilities if they lose network connection. Active Wig-Wags (being another form of AAWS) are solar powered.

3 ACTIVE ADVANCE WARNING SIGNS (RX-11)

These units are comprised of amber flashing lights and a wireless repeater, mounted on top of an advance warning sign. They are installed on the road-side on the approaches to the railway crossing. The feature fail-to-safe capabilities if they lose network connection, and are solar powered.



4 IN-ROAD ALERT BEACONS (IRAD)

These optional units are self-contained amber flashing in-road lights. They are installed, as required, in the road on the approaches to the railway crossing, starting at the position of the Active Advance Warning Sign (RX-11) and ending at the railway crossing. They feature optional fail-to-safe capabilities if they lose network connection (via the ADC and any AAWSs in the network) and are battery powered.

CONTROL SYSTEM

5 ALERT DEVICE CONTROLLER (ADC)

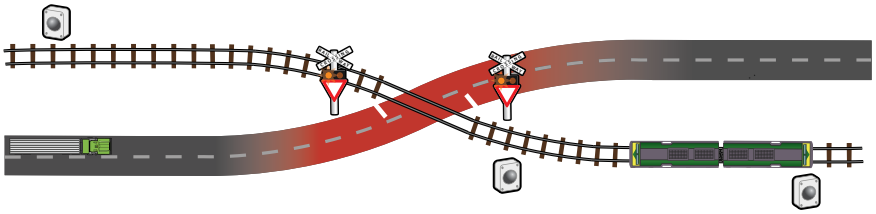
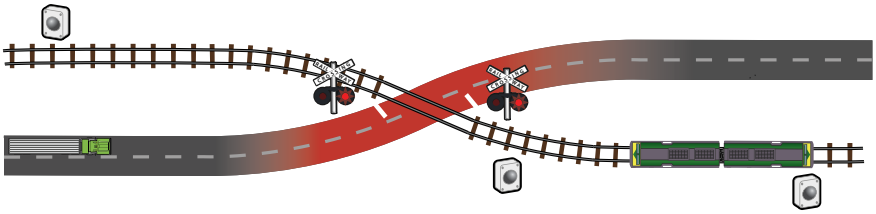
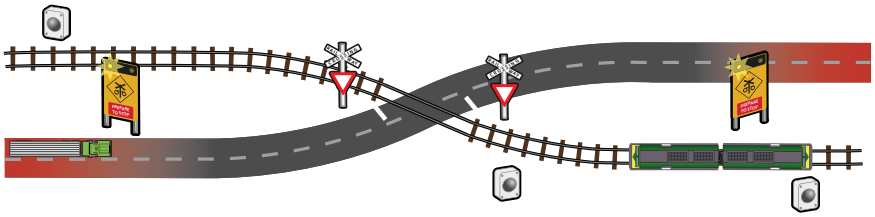
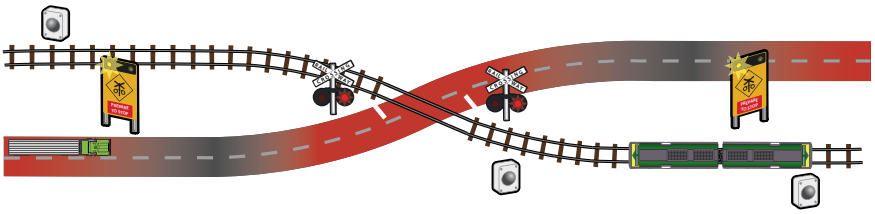
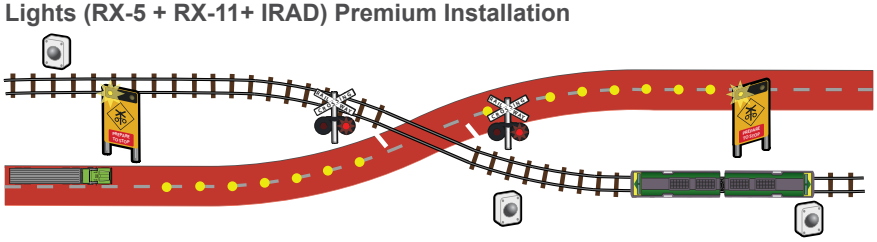
This is the network controller device, that relays signals received from either an existing train detection system, or an array of **SafeZone** Train Detection Radar units. The ADC also provides remote monitoring capabilities via a 3G connection. In the event of an ADC failing, fail-to-safe functions are implemented by the other system elements.

SYSTEM SOLUTION OPTIONS

A modular approach to creating road user SafeZones on the approaches to railway crossings based on warning levels required

= *Active Warning Zone*

WARNING LEVEL: LOW → HIGH

	Retrofit of flashing lights to existing Give Way or Stop signs	5 Alert Device Controller	4 In-Road Alert Beacons	3 Active Advance Warning Signs	2 Active Wigwags	1 Train Detection Radars	SOLUTIONS FROM:
		3	2	-	-	1	$38K
	New Active Red Flashing Signal (RX-5) installation	3	2	-	-	1	$58K
	New Active Advance Warning Sign (RX-11) installation	3	-	2	-	1	$58K
	New Active Advance Warning + Red Flashing Signal (RX-5 + RX-11) Installation	3	2	2	-	1	$78K
	New Active Advance Warning + Red Flashing Signal + In-Road Flashing Lights (RX-5 + RX-11+ IRAD) Premium Installation	3	2	2	20	1	$98K

SAFEZONE

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ABOUT INVENTIS TECHNOLOGY

Inventis Technology is a Sydney-based electronics design and manufacturing business specialising in embedded control systems, stand-alone electronics control devices, wireless warning systems and ruggedised portable computers and computer-based solutons. We've been delivering innovative solutions to electronics OEMs, first responders, enforcement and defence groups, as well as a wide range of commercial and industrial customers for more than 25 years.

Our brands include:

Emergency Alert Systems (EAS) - wireless emergency warning systems
Impart Special Products (Impart SP) - vehicle system controls & accessories
Opentec Solutions - rugged portable computers & computer-based solutions
PNE Electronics - custom-designed electronic control solutions
SafeZone - driver & pedestrian advance warning systems
UR Media - digital advertising solutions for unattended retail locations

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