

# Integrated Solutions for Traffic Management.

## Integrated radar solution for motorways.

Implement an integrated solution to improve traffic management without stopping traffic.

### Limitations of traditional traffic monitoring

Inductive loops are the traditional vehicle detection technology used at intersections and on the motorway to monitor traffic flows. These loops are fixed in the road surface providing minimal options in terms of configuration and data availability. As loops are located under the road surface or pavement, loops end up requiring significant maintenance, as high traffic areas cause loops to frequently deteriorate or fail. Due to the way loops are installed, maintenance can cause disruption to traffic flow and potential road or lane closures. Loop detection systems are increasingly being seen as an inefficient and costly way to monitor and measure traffic.

### Safe, versatile and real time traffic data

By introducing the use of a smart traffic radar, the invasive nature of traffic loop installation and maintenance is avoided. By using a smart traffic radar, it enables road authorities to install a safe, versatile and reliable technology on the roadside or on overhead gantry infrastructure, significantly reducing the impact on road users and providing useable real-time traffic data in existing or next generation traffic controller systems.

### Benefits of using radar technology

By implementing smartmicro technology there are a large range of benefits to both

road authorities and road users. Some of these include:

- Real time data
- Measure vehicle speed, range, angle, position, lane and direction of travel
- Individually track up to 256 objects in field of view
- Edge processing
- Improve traffic flow and thereby reduce CO2 emissions
- Easy to install with existing infrastructure
- Operating temperature range from -40°C to 85°C

### Motorway Application

When making the decision to effectively lead an intelligent traffic management strategy, Transport Departments and road operators require metrics and real time data on road use - so that they can evaluate performance and potential pitfalls over time. With six traffic lanes and traffic counts of over 200,000 vehicles each day, the installation or cutting of traffic loops into the pavement and keeping traffic flowing is not a trivial operation to undertake.

In this application, the smartmicro UMRR-0C Type 42 radar has been installed on the side of the motorway. The installation work did not require closing lanes or invasive pavement maintenance. The radar was placed on a tilt-over pole angled to cover traffic flowing in both directions. The radar was installed at a height of approximately six metres. This height minimises the risk of occlusion from tall vehicles and enhances the detection range

BRANDS USED IN THIS APPLICATION



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for both north and south-bound lanes with a single radar. The Type 42 radar can detect approaching vehicles at a distance of up to 350m from the installation location.

The smartmicro Type 42 radar can do more than just count vehicles. The radar measures rich per vehicle data such as vehicle class, length, speed, direction, gap and headway. It is also able to trigger on specific events such as wrong way, or other incident detections such as a fall in speed. The radar can individually track up to 256 objects in its field of view. Edge processing can be performed onsite using an industrial PC.

Once configured for the site, the radar supplies a continuous stream of information that is consumed by a software driver and converted to a human readable statistical format, ready for further processing and analysis. The edge processing also has the advantage of being able to buffer and store data, if communication is lost to the data centre. Once the radar has been installed, it requires little if any maintenance. During night hours and severe weather events, the radar can continually and accurately count and classify vehicles.

Most installations only require a single CAT5e/ CAT6 cable to be installed. The Type 42 radar has several communications interfaces that can be used depending on the application and installation constraints.



# Application Diagram.

