

# SICK AG WHITEPAPER

UHF RFID CONNECTS OEM AND TIER SUPPLIER

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## AUTOR

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## SUMMARY

UHF RFID technology has many advantages compared to other identification technologies. This white paper gives an overview of current applications that can be solved successfully using UHF RFID. Additionally, it provides an outlook on upcoming trends that affect the OEMs as well as the automotive tier suppliers.



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## STATUS QUO: UHF RFID AT OEMS

The automotive industry and car manufacturers in particular are some of the main drivers of UHF RFID technology.

The original equipment manufacturers (OEMs) have recognized the advantages of this technology and have been using it successfully in the production of their cars for years.

By attaching a high-temperature-resistant transponder to the car body at the beginning of the build, the entire production process of a car can be precisely planned and transparently monitored, from body shop through the demanding painting processes and on to final assembly.

The consistency of this solution reduces the need of different identification technologies and enables full transparency for car body tracking throughout the complete production process.



Figure 1: Car body identification with RFU630 UHF write/read device and temperature-resistant UHF label attached directly to the body



## CLOSING THE GAP

To meet the increasing requirements in terms of efficiency and make the vehicle assembly documentation (described in “Demand for documentation”) usable for the OEM, the suppliers must deliver their components with a UHF transponder.

But are there benefits of using UHF RFID technology for the suppliers? Up to this point, not many.

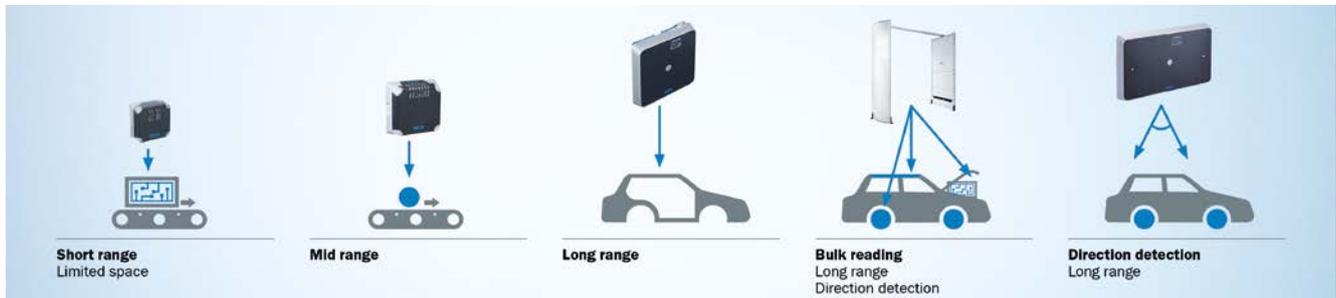
Why is that: Today’s identification solutions at suppliers are mostly based on bar code or HF RFID. Both technologies are sufficient to ensure basic trackability and traceability in the supplier’s processes.

In the future, however, it will become more and more important to have smart products/components that can be identified in downstream processes and even across companies or factories.

The goal is to know at any time where relevant components are, and preferably, when they arrived as well as what they are intended for. Having this information opens up multiple possibilities for the supplier to plan and control their processes in a very efficient and flexible manner. As in the example of vehicle assembly documentation, the need for a uniform and coordinated identification strategy is growing.

With bar code or HF RFID, only individual processes can be made transparent, not the entire supply chain. Only UHF RFID with its large, flexible ranges and the ability to read many tags at the same time (bulk reading) makes full transparency along the entire supply chain practicable.

By using UHF transponders in their own manufacturing and logistics, the tier suppliers can also make their processes more transparent and efficient. So, not only the OEM can benefit from a UHF transponder on, e.g., a transmission, seat, or other car part for documentation. Tier suppliers can also use these transponders in short range applications in their assembly or long range and bulk applications in their logistics processes to identify multiple components at the same time. Thus, OEMs and suppliers both benefit from the advantages of UHF RFID technology and transparency along the entire supply chain increases.



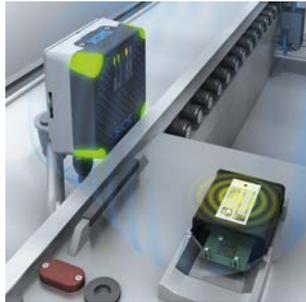
## SOLUTIONS: SICK AND AVERY DENNISON SMARTRAC

SICK and Avery Dennison Smartrac provide customized solutions to support the automotive industry.

The RFU6xx UHF RFID product portfolio from SICK offers a wide range of solutions from short to long ranges as well as detection of direction.

In those applications with limited installation space, the RFU610 impresses with its compact size and built-in intelligence – smALL-IN-ONE.

The RFU610 reliably identifies components at ranges of up to 0.5 m on assembly lines and machines at tier suppliers. It closes the gap between automotive tier supplier and OEM, which enables a consistent identification solution for the entire supply chain.



Besides the read/write devices from SICK the transponder solutions of Avery Dennison Smartrac offer a broad line-up for tagging diverse car components. Here are some examples of components and the related solutions.

### Plastic components, e.g., for bumpers, dashboards, interior panels, seats:



AD Belt



AD Miniweb



AD Frog 3D®



AD Dogbone®



AD Squarewave

### Metal components, e.g., for gear boxes, engines, batteries, cables, brakes, cooling parts:



AD Skyline



AD Midas Flag Tag®

OUTLOOK IN PICTURES

Tier supplier

OEM / car manufacturer

Past and Present

Tier supplier does not use UHF RFID, but is forced to tag car parts nonetheless.



NEW!!!

Future

Tier supplier benefits from use of transponders and increase in process transparency.



Assembly of car part

Fast documentation (bulk reading) and reliable identification of relevant parts reducing the number of recalls



RFID printer for encoding and printing

UHF transponder

#### FURTHER LINKS

Whitepaper „Identification technologies overview“:

→ [www.sick.com/media/docs/9/79/779/whitepaper\\_identification\\_technologies\\_overview\\_en\\_im0058779.pdf](http://www.sick.com/media/docs/9/79/779/whitepaper_identification_technologies_overview_en_im0058779.pdf)

More information on RFID:

→ [www.sick.com/rfid](http://www.sick.com/rfid)

→ [rfid.averydennison.com](http://rfid.averydennison.com)

More information on 4Dpro: → [www.sick-4Dpro.com](http://www.sick-4Dpro.com)

More information on all Identification technologies: → [www.sick.com/more-than-a-vision](http://www.sick.com/more-than-a-vision)