



## HARMAN SHIELD FOR CONNECTED CARS

Connectivity enables transformation but not without its risks. Sales of connected cars continue to grow and will reach an estimated 380 million vehicles by 2020. Protecting this increasingly complex connected car ecosystem can be a difficult task, especially as the proliferation of data across different connected devices makes them more vulnerable than ever before. HARMAN SHIELD is the most comprehensive Intrusion Detection and Prevention Solution (IDPS) to detect, manage, mitigate and respond to cyber-attacks on connected and autonomous vehicles, keeping vehicles safe and protected.

**HARMAN SHIELD for Connected Cars** provides full visibility to possible harmful activities and detection of in-vehicle cyber threats. It includes a means to assess and investigate those threats and has capabilities to report, respond and mitigate the threats in real-time. The solution is comprised of leading building blocks to provide a modular scalable architecture.

### In-vehicle Agents:

All HARMAN SHIELD agents employ HARMAN award-winning IDS technology and are equipped with full backend reporting capabilities and OTA updatability.

- **HARMAN Telematics SHIELD:** A full-suite for a TCU system, applying the best security technology to minimize the attack surface, including a full-fledged Intrusion Detection System providing protection over typical vulnerabilities in external communication protocols, such as 3G/LTE and V2X.
- **HARMAN In-Vehicle Infotainment SHIELD:** Supporting HARMAN leading Head-units, In-Vehicle Infotainment (IVI) System and Digital Cockpit solutions by providing security best practices and addressing common connectivity interfaces potential weak points, such as Bluetooth and WiFi.
- **HARMAN Gateway SHIELD:** An Intrusion Detection and Prevention System (IDPS) for in-vehicle networks, providing protection against hacking and communication disruptions, ready to embed into ECUs or smart gateways. The system detects anomalies through a machine-learning (ML) algorithm that is offline-trained to characterize normal vehicle traffic behavior. That ML baseline is then compared in real-time to the vehicle's actual behavior.

### Top-line Benefits

HARMAN SHIELD for Connected Cars keeps our cars protected by:

- **Collecting** security relevant data from the vehicle
- **Detecting** anomalous and rule-based events
- **Discovering** security-related status per vehicle and across an entire fleet
- **Managing** security threats, risk, trends and impact using summarized data
- **Investigating** using forensic methods, attack replay and post-mortem analysis
- **Responding** by mitigating threats in real-time and recommending on future counter measures (Over-The-Air Software Update, Incident report, etc.)

### Why HARMAN?

#### Shortening Time-to-Market

Shorten your time from concept to delivery using our best practices, turn-key delivery models and rich talent pool.

#### Cross-platform

Take advantage of our experience in multiple industry verticals and leading platforms to rapidly exploit new market opportunities.

#### Global delivery footprint

Our skilled, talented engineers deliver solutions to companies like yours from centers throughout the world.

#### Solution accelerators

Get access to leading edge innovation and best practice by using our solution accelerators and global pool of partnerships.

[www.harman.com](http://www.harman.com)

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## Features and Benefits

Key components	<ul style="list-style-type: none"><li>• HARMAN SHIELD In-vehicle Agents - Embedded on and protecting key entry-points to critical assets, including TCUs, Head units and central gateways.</li><li>• HARMAN SHIELD Smart Client - A centralized client-side orchestrator to provide smart aggregation of data and standard reporting to the backend.</li><li>• Cybersecurity Analytics Center (CSAC) - A full dashboard and analytics solution, providing 24/7 visibility of broad vehicular security related events from HARMAN SHIELD Agents and is integrated with the HARMAN Ignite Platform.</li><li>• API for 3rd party integrations - Import HARMAN SHIELD data into Security Operations Center / Security Incident and Event Management (SOC/SIEM) solutions.</li></ul>
Easily embeddable into any platform and operating system	<ul style="list-style-type: none"><li>• Easily integrates into existing production lines irrespective of any automotive software platform and operating system.</li></ul>
Low maintenance cost	<ul style="list-style-type: none"><li>• Built for low-resources and real-time environments</li></ul>
No architecture redesign needed	<ul style="list-style-type: none"><li>• Does not require any architectural modifications in the existing systems of an OEM or Supplier</li><li>• Rapid integration into existing network architectures and AUTOSAR compliant</li></ul>
Built-in OTA integration	<ul style="list-style-type: none"><li>• HARMAN Remote Vehicle Updating Service enables efficient full-vehicle software management</li><li>• The Remote Vehicle Updating Service delivers digitally signed and fully authenticated Smart Delta OTA software packages, directly to connected cars under the strictest compliance with OMA-DM protocols.</li></ul>
Double perimeter security for both in-vehicle and external communication channels	<ul style="list-style-type: none"><li>• Single installation provides full mitigation capability</li><li>• Protects connected ECUs and TCUs in a wide-range of automotive attack scenarios</li><li>• Offers multiple layers of defense and prevents hazardous viruses, malware and hacking attempts that may compromise car functionality, facilitate owner identity theft and even endanger driver safety</li><li>• Supports a wide array of network protocols — CAN, CAN-FD and ETHERNET</li></ul>

## Partner with an industry expert

HARMAN International is a wholly-owned subsidiary of Samsung Electronics Co., Ltd. focused on connected technologies for automotive, consumer and enterprise markets.

HARMAN (harman.com) designs and engineers connected products and solutions for automakers, consumers, and enterprises worldwide, including connected car systems, audio and visual products, enterprise automation solutions; and services supporting the Internet of Things. With leading brands including AKG®, Harman Kardon®, Infinity®, JBL®, Lexicon®, Mark Levinson® and Revel®, HARMAN is admired by audiophiles, musicians and the entertainment venues where they perform around the world. More than 50 million automobiles on the road today are equipped with HARMAN audio and connected car systems. Our software services power billions of mobile devices and systems that are connected, integrated and secure across all platforms, from work and home to car and mobile. HARMAN has a workforce of approximately 30,000 people across the Americas, Europe, and Asia. In 2017, HARMAN became a wholly-owned subsidiary of Samsung Electronics Co., Ltd.

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