



## HARMAN SMART/AUTO: WIRELESS CHARGING MODULE

### Charging smartphone batteries while on the go

Consumers rely on their phones for a variety of connected services. These services include audio and video applications, media streaming via Bluetooth, online navigation and much more. Mapping applications, used primarily while in the car, accessing a smartphone data connection and a GPS signal, deplete the phone battery at an even faster rate. Keeping the battery of a mobile device charged is an ongoing challenge for most consumers.

Despite heavy usage of mobile phones in vehicles, most cars today require the owner to plug their device into a USB port to maintain the charge while commuting – which is inconvenient and often not utilized because the charging cable is lost or not available. A much more convenient way to charge the mobile device while traveling in a vehicle is by using a built-in wireless charger.

### Automotive Smartphone Wireless Charging Module (WCM)

HARMAN Smart/Auto: Wireless Charging Module helps Automotive OEMs to integrate the latest Qi-compliant charging technology enabling in-vehicle wireless smartphone charging for their customers. Equipped with three transmitting coils, HARMAN Smart/Auto: WCM supports best-in-class transmitter-receiver coupling and position freedom. It embeds a smart interface that communicates with the most common automotive buses (CAN, LIN, etc.) to continuously monitor the charging status.

The HARMAN Wireless charging tray is installed in the center console box and can be used by simply placing the device in the phone holder to start charging it. An advanced Foreign Object Detection (FOD) feature reliably prevents transmitting power to any non-Qi-compliant object such as coins, paper clips, pieces of foils, wrappers, etc. The wide range of WPC Qi standards from 5W low power up to 15W medium power supports the most popular fast charge proprietary algorithms like Samsung and Apple.

Designed as a compact Automotive Electronic Control Unit (ECU), HARMAN Smart/Auto: Wireless Charging Module is compliant with automotive safety, security, environmental and regulatory requirements, while enabling industry-leading charging performance and efficiency. It can also be customized by the OEMs to suit their local markets.

### Top-line Benefits

- Qi standard compliant and approved for automotive environments
- Compatible with most phone cases and sleeves that support Qi standard
- Easy charging without plugging in your device and secures it even during bumps/crashes
- Enables free positioning with a three-array power transfer coils

### Product specifications

- Qi standards compliant
- Power transfer up to 15W
- VIN range: 6V – 36V
- MP-A13 Qi Transmitter topology
- Standard in charger FOD due to Power Fluctuation as standard: 480 mW (up to 10W), 705 mW (up to 15W).
- CISPR-25 Class 3 (15W) and Class 4 (5W) compliant
- Includes industry proprietary fast charge modes
- Low standby and sleep mode power
- Supports Fixed frequency operation

Available in 2 models:

1. WCM 500/1500 (for 5W/15W connectivity)
2. WCM 1500C (for 15W with CAN connectivity)

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

©2019 HARMAN INTERNATIONAL  
INDUSTRIES, INCORPORATED

This document is for informational purposes only.  
All rights reserved.

## Features and Benefits

Qi Standard	HARMAN's WCM is designed to meet the global Qi standard, which was established to ensure compatibility between Qi-compatible phones and other electronics and chargers. Many smartphones come with a Qi-compatible chip allowing wireless charging without an added sleeve.
Fast charging technology	Supports up to 10W fast charging for Samsung smartphones and up to 7.5 W fast charging for Apple smartphones.
Maximum charging power	15W charging capabilities (WPC mid-power)
Charging position	The three array power transfer coils that are built into the charging module facilitates a wider area for charging the phone and also helps in free positioning of the phone.
Charging status	Indication lights indicate the charging status. The entire setup is made of a flame-retardant material protecting the phone and the passengers.
Transmitter	Supports MP-A13 Qi Transmitter topology
Foreign Object Detection (FOD)	<ul style="list-style-type: none"><li>• FOD with improved accuracy quality-factor monitoring. Enhanced FOD with "open FOD"; detecting object even before the power transfer, through coils Q-factor measurements.</li><li>• FOD capability can be extended beyond existing standards to improve detection.</li></ul>
Device identification	<ul style="list-style-type: none"><li>• Customized charging profile depending on the phone manufacturer</li><li>• Receiver ID detection for user recognition without Near-field communication (NFC)</li></ul>
Voltage	Full power charging with a wide input operating voltage (6-36V)
Power management	Enhanced power supply management to ensure wireless charging even when the engine is starting
Very good EMC performance	CISPR 25 contains limits and procedures for the measurement of radio disturbances in the frequency range of 150 kHz to 1000 MHz.
Frequency	Device is designed to support fixed frequency operation making it compatible with the vehicle
Updates	WCM is updatable via the in-vehicle diagnostics interface.
Avoiding interference	Frequency jump to avoid Smart Key interference

## 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](http://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.



Visit our website [harmanconnected.services/get-connected](http://harmanconnected.services/get-connected)