



# CHARIN

## Position Paper of Charging Interface Initiative e.V.

Electric Fuel Labelling

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## **1. Introduction**

CharIN is dedicated to develop and establish the Combined Charging System (CCS) as the standard for charging Battery Electric Vehicles (BEVs) of all kinds. In that context also visibility and corporate design for the new technology plays a significant role to gain acceptance in the market.

It is important that drivers of electric vehicles are able to quickly identify (fast) charging stations that they can use along their route to charge their vehicles. Also, due to the multiple (fast) charging connector standards currently in use, they must be able to identify the right connector for their particular vehicle when they want to charge at a charging station. This CharIN position paper wants to give a guideline for organizations and authorities who need to create labels for the mentioned purpose.

## **2. Charging stations labels on road signs**

Drivers of electric vehicles have various ways to plan their route and locate charging stations such as an in-car navigation system, a smartphone app and road signs pointing them to charging stations. With the increasing range of electric vehicles road signs give drivers the freedom to make decisions when and where to charge their vehicle in a similar way as with a fossil fuel vehicle. This requires charging station labels on road signs to be commonly perceived with the same understanding.

CharIN believes that charging station labels on road signs are mostly relevant for highways and main regional roads with fast charging stations to allow drivers to charge their vehicle in a short amount of time and continue their trip. Road signs should be well-recognizable even when driving at highway speeds so details such as charge speed, output types etc. should not be included. Furthermore, it is assumed that road owners will only point to fast charging stations which are relevant for drivers meaning that they should have sufficient redundancy and capacity (multiple outlets) and that the charge speed is relevant (so currently at least 50 kW and later at least 150 kW when this charging power will be in general available).

CharIN proposes that the label for road signs will be similar (in ways of size and color) to the current fuel station label so drivers can recognize the label easily. The label should create a clear understanding of a charging possibility for electric cars.

In some cases, existing road signs have limited space for new labels. In that case the road owner can decide to 'blend' the proposed charging station label and the existing fossil fuel station labels into one label that combines these two facilities.

From CharIN's members view reflecting different countries worldwide with their in some cases already established road signs and coloring finding common ground will be difficult concerning colors, as well as for road signs. I.e. the labels and colors outlined or proposed in this paper want to give examples for a recommended practice.



*Proposed charging station label for road signs*

Available: [https://www.afdc.energy.gov/fuels/electricity\\_charging\\_station\\_signage.html](https://www.afdc.energy.gov/fuels/electricity_charging_station_signage.html) [Accessed: 15-Aug - 2017]



*Label used in France*



*Label used in Germany (symbol 365-65 specified per national regulation, Available: <https://www.umwelt-online.de/recht/gefahrgut/strasse/vzeinf.htm>) [Accessed: 15 -Aug -2017]*



### 3. Labels for charging outputs

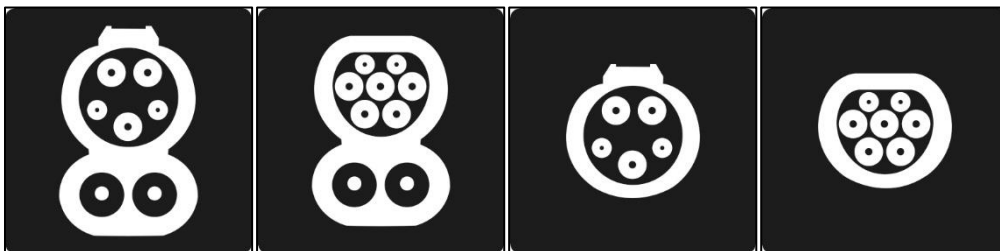
Today, fossil fuel cars are not labelled with the fuel type like petrol, diesel or LPG. It is assumed that drivers are aware what kind of fuel their vehicle requires. Typical exceptions are rental cars that have a fuel type label to prevent customers filling up with the wrong type causing damage to the vehicle.

Unlike fossil fuel car the actual inlet is different rather than the 'fuel' itself. If the output fits properly then the vehicle should be able to charge. In the event a driver attempts to use the wrong output it will be clear at once that the output is incompatible with its vehicle and no damage can be caused to the vehicle itself. CharIN therefore sees no reason to propose a label for the vehicle charging inlet.

However, it is important that drivers can easily identify the right output for their vehicle to prevent a bad customer experience. Already in 2014 several manufacturers of fast chargers agreed upon a proposal for labels of (fast) charging outputs. Currently 1.000's of multi-standard fast chargers in the field already follow this proposed labelling. This should be seen as a temporary solution for existing multi-standard chargers.

CharIN encourages (fast) charger manufacturers to follow the labelling proposal in order to provide drivers of electric vehicle a consistent user experience.

The previous version of this position paper included a color coding scheme for the various outlets. An increasing number of fast chargers which are currently being deployed is equipped with only 1 (or 2) outlets. This reduces the need for additional color coding of the outlets since the potential confusion by drivers is already less likely compared to fast chargers with 3 outlets. Additionally, due to the diverse range of colors of the actual connectors (plugs) the color coding was in some situations also counterproductive in reducing the confusion for drivers. These are the reasons why the color coding has been removed from this position paper.



*Example for monochrome labels*



Charger manufacturers and vehicles manufacturers that supply products in the EU should be aware of the European Standard “EN 17186 Identification of vehicles and infrastructures compatibility - Graphical expression for consumer information on EV power supply” which is currently in “draft” status.

This European Standard provides harmonized compatibility labelling across Europe and thus effectively supports the implementation of Article 7 of Directive 2014/94/EU by EU Member States. The European Standard complements the information needs of an electric vehicle user arriving at a charger with respect to the connection of his electric vehicle. According to this Standard, the consumer needs to be able to easily distinguish the different types of proposed electrical interfaces, in order to identify the correct interface of the charger compatible with his electric vehicle, and also to give optional information like power levels.

The implementation of this European Standard may make section 3 of this CharIN position paper obsolete for EU countries. In line with this European Standard we recommend including the text "CCS", "AC" or "CHAdeMO" in the optional first field of the label (above the hexagon) to ensure consistent naming of connector types for EV drivers.

Please note that other countries and regions may have similar regulations or standards.