



**ISO 15118-10**

**Road vehicles — Vehicle to grid  
communication interface —**

Part 10:  
**Physical layer and data link layer  
requirements for single-pair  
Ethernet**

*Véhicules routiers — Interface de communication entre véhicule  
et réseau électrique —*

*Partie 10: Exigences relatives à la couche physique et à la couche  
liaison de données pour Ethernet à paire unique*

**First edition  
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The looming energy crisis and necessity to reduce greenhouse gas emissions has forced vehicle manufacturers to find ways to scale down how much energy their vehicles consume. The vehicles they are currently developing are propelled either entirely or in part by electric energy. If this energy is generated from renewable sources, this will weaken dependency on oil, improve the global energy efficiency and cut CO<sub>2</sub> emissions. However, a dedicated charging infrastructure is needed to charge the batteries that power these vehicles.

Much of the standardization work on dimensional and electrical specifications of the charging infrastructure and the vehicle interface is already treated in the relevant ISO or IEC groups. However, the question of information transfer between the electric vehicles (EV) and electric vehicle supply equipment (EVSE) has not been treated sufficiently.

This communication is key to optimizing energy resources and energy production systems so vehicles can be charged cheaply and efficiently.

In this document, messages are exchanged between the vehicle and the infrastructure over single-pair Ethernet (which is embedded in the cable assembly).

The relevant information on use-case definitions requirements can be found in ISO 15118-1. Network and application protocol requirements can be found in ISO 15118-20, respectively.