

CharIN – Charging Interface Initiative e. V.

Establishing a global charging standard New Zealand Electro Mobility Summit 2023











CharIN's Vision

The overall scope



The Charging Initiative e.V. (CharIN) is a non-profit association promoting **interoperability of global charging solutions** for vehicles of all types, and to define requirements for the **evolution** of charging related standards and for the **certification** of CCS and MCS based charging products.



CharIN undertakes **activities in the different world regions** to promote charging of electric vehicles as well as charging in the aviation and marine sector, supporting battery powered mobility, and related technologies.



The alliance strongly promotes the **adoption of charging standards**, including, but not limited to, **CCS**, **MCS**, **ISO /IEC 15118** and related standards, together with all measures and services connected therewith.



All you need to know about CharIN!

Explanatory Video

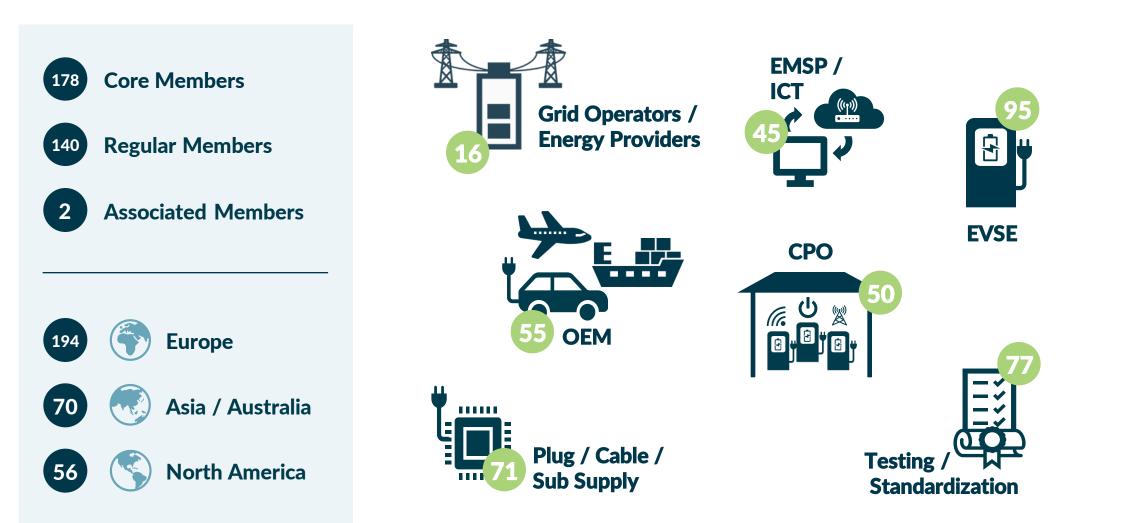




CharlN's Value Chain

As of June 1, 2023

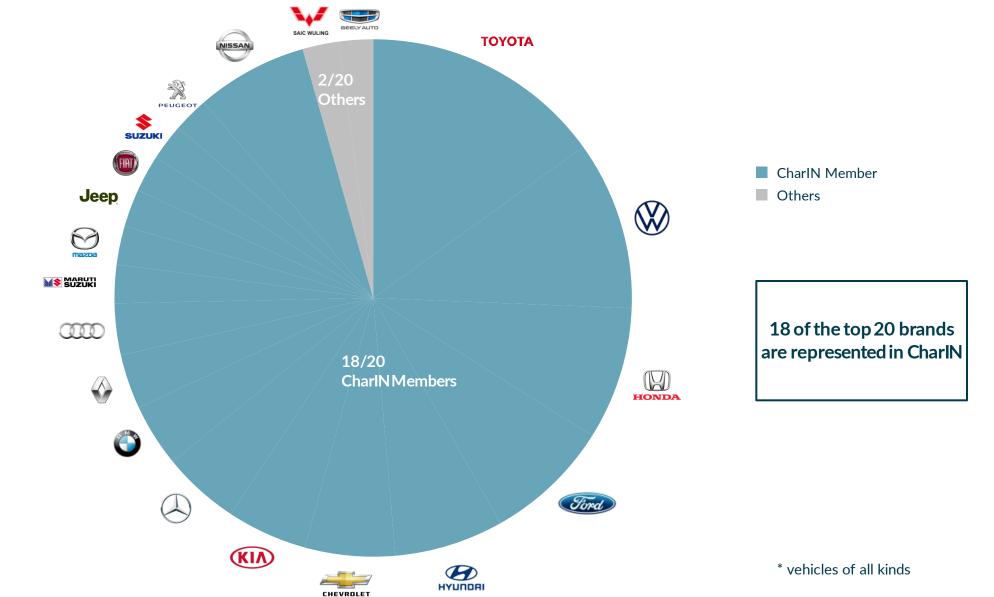




Membership Share



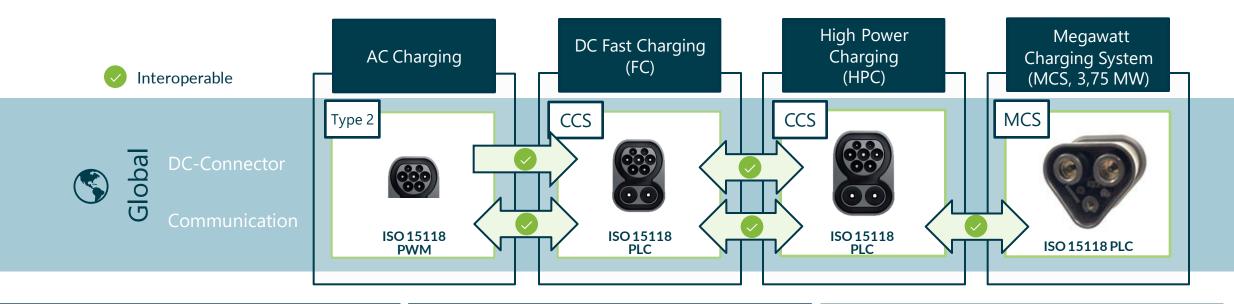
Top 20 brands 2020 by volume*



One system for all

CCS and MCS







Charging System Standards worldwide

Advantages of ISO 15118 Communication Protocol



Charging System		Communication Protocol		DC	AC	TLS	PnC	SCF	BiDi	WPT	ACD
CCS 1 CCS 2 MCS (Global)		ISO 15118-20 Ed1 (Q1 2022)		\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	√	\checkmark	√
		ISO 15118-2:2014 Ed. 1		~	\checkmark	√	√	\checkmark	Х	Х	Х
		DIN SPEC70121:2014 Ed. 2		\checkmark	Х	Х	Х	X	Х	Х	Х
CHAdeMO 3.0 (Japan)		Tbd (ChaoJi-2, CAN 11bit*)		√	x	x	x	\checkmark	√	x	x
CHAdeMO (Japan)		IEC 61851-23/24 (CAN 11 bit*)		√	x	x	x	x	~	x	x
ChaoJi (China)		Tbd (ChaoJi -1, CAN29bit*)		√	х	х	x	~	?	x	x
GB/T(China)		GB/T27930 (CAN 29bit*)		~	х	х	x	x	Х	x	x
AC – Alternating current charging		ACD - Automatic connection device	BiDi – Bidirectional charging		ng D	DC – Direct current charging			*Limited bandwidth due to		
PnC – Plug & Charge		SCF – Smart charging function	TLS – Transport Layer Security			PT - Wireles	ss Power Tra	nsfer	CAN bus based physical layer		

ISO 15118-20 Ed. 1 adds additional features and charging methods For the first time, implementation of ISO 15118-20 Ed. 1 will serve all use cases to enable seamless introduction of electric vehicles.

Bidirectional Charging

Vehicle to load (V2L) after Cyclone Gabrielle, New Zealand





"We have had no power for two days, three nights. The V2L system has been running our fridge, lights, charging appliances, internet wifi and the odd appliance like a toaster and coffee machine" Source: autocar.co.nz

Plug & Charge



Because everything else is **more important.**

Plug& Charge

Plug & Charge, charging your EV has never been that simple!

Plug & Charge allows automated communication and billing processes between the electric vehicle and the charging station without any need for external identification (e.g. RFID cards, Debit/credit cards or charging apps) while ensuring high IT security at the same time. Making charging your vehicle as easy as charging your phone.



More information:

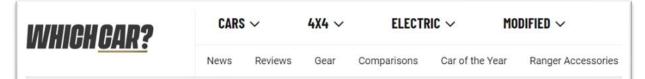
影 www.charin.global/technology/plug-and-charge



CharlN e. V. | Empowering the next level of e-mobility

CharlN and North American Charging Standard (NACS)

What does NACS mean for New Zealand and Australia?



NEWS

Ford & GM switching to Tesla NACS EV chargers in North America

The landmark move will see the first non-Tesla car manufacturer integrate with its Supercharging network

9 JUN 2023, 10:39 AM 🛛 Comment 🛛 🔺 Share

TechCrunch+ Market Analysis

GM and Ford could help spark a charging standards war by teaming up with Tesla

Rebecca Bellan @rebeccabellan / 6:00 AM GMT+12 • June 10, 2023



Megawatt Charging System

Motivation and Scope



A CharIN task force was formed in March 2018 with the following purpose statement:

"Define a new commercial vehicle high power charging standard to maximize customer flexibility." It was named the High Power Charging for Commercial Vehicle Task Force (HPCCV for short) and later changed to "MCS" for "Megawatt Charging System".



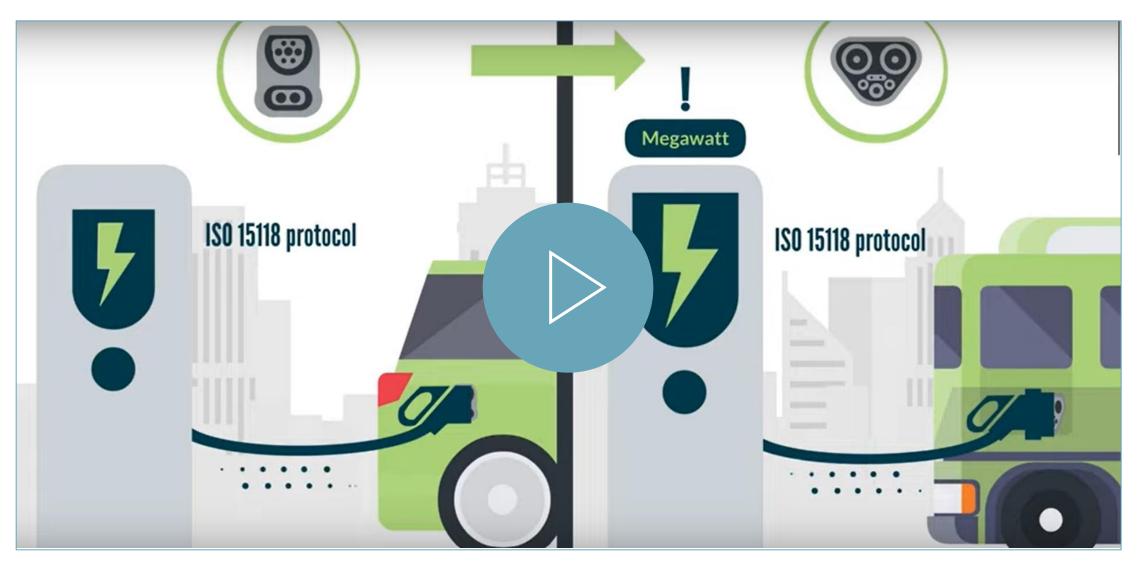
Requirements (not a complete list)

- Single conductive plug
- Max 1.250 VDC
- Max 3.000 ADC
- PLC+ ISO/IEC 15118
- Touch Safe (UL2251)
- On-handle software-interpreted override switch
- Adheres to OSHA & ADA (&local equivalent) standards
- FCC Class A EMI (&local equivalent)
- Located on the left side of the truck, roughly hipheight
 - Capable of being automated
 - UL (NRTL) certified
- Cyber-Secure
- V2X (bi-directional)

Megawatt Charging System (MCS)

Explanatory Video





Megawatt Charging System (MCS)

At EVS36 in Sacramento, USA



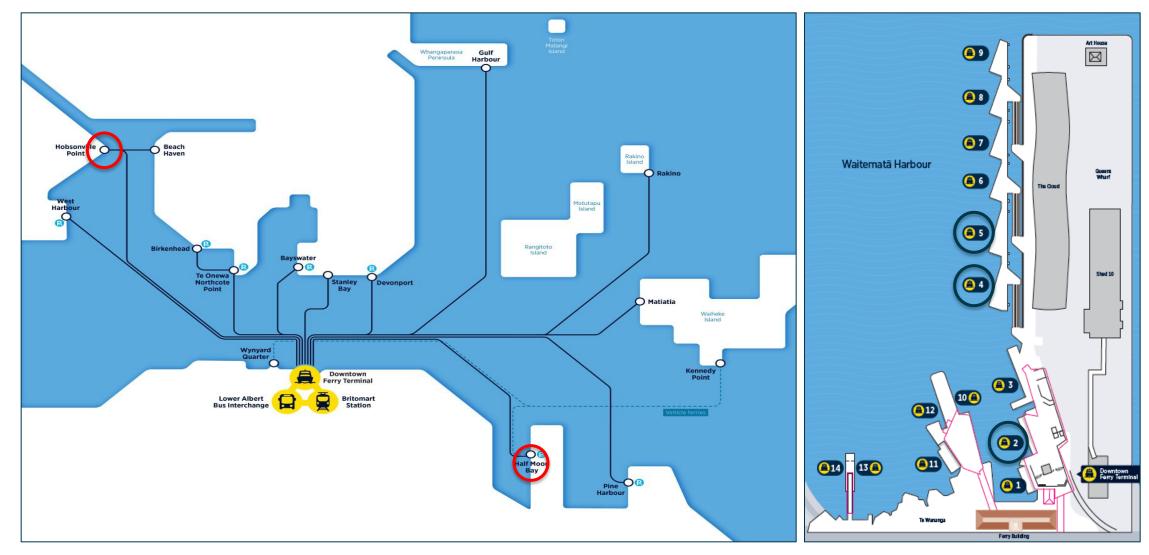




Megawatt Charging System

Auckland Transport ferries – proposed initial MCS charging locations





CharIN Membership

Benefits

Empower the next level of e-mobility

- Share information
- Get firsthand information
- Participate in the growing global charging standard
- Active participation on creating position papers and industry statements
- Help define requirements for charging standards
- Close collaboration between members on requirements and system descriptions
- Benefit from targeted, marketoriented strategies



- Use marketing tools (website, press releases, usage/placement of logo, product placing and many more)
- Coordinated event management, e.g. joint trade shows like EVS, Charge Days, and many more



 Get connected with more than 260 international members from the whole value chain



CharlN Academy GmbH

Scope | Next level of education, certification & events



EDUCATION

Need to **level-up know-how** of incumbents & new entrants

- ✓ global trainings for everyone
- leading industry experts
- all areas of the charging ecosystem covered
- ✓ interactive and practice-oriented courses
- networking opportunities





CERTIFICATION

Guarantee the minimum requirements of socalled "CCS" product for charging interoperability by **CharlN mark**

- Interoperability Testing & Certification Committee: Quality and Monitoring
- ✓ Testing house: Reporting and Certification
- CCTS Vendor: CharIN Conformance Test System





EVENTS

It's all about testing:

- CharIN Testival embraces the challenge of interoperability
- Conformance and interoperability tests for electric vehicles and charging infrastructures
- ✓ Controller tests
- Networking with international technology experts
- Different locations and countries around the globe



Thank you for your kind attention! Any questions?

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