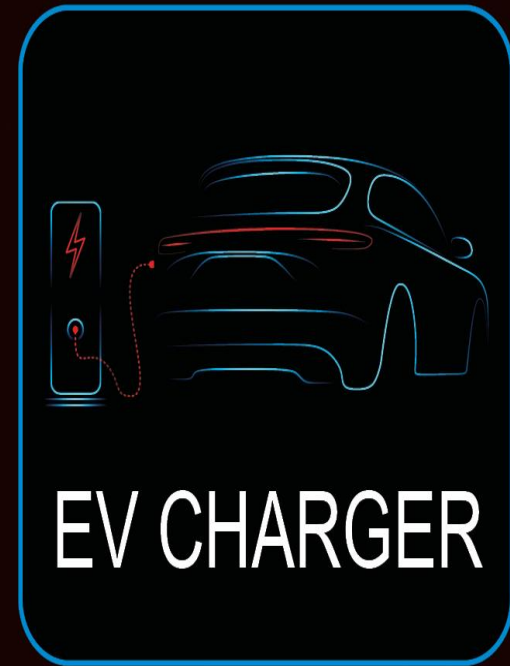
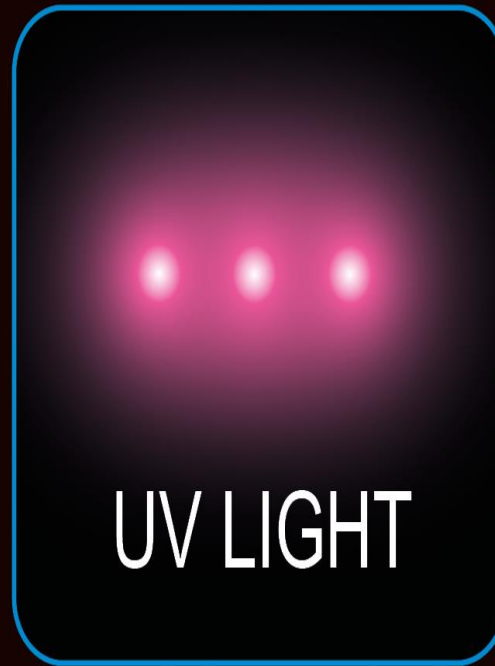
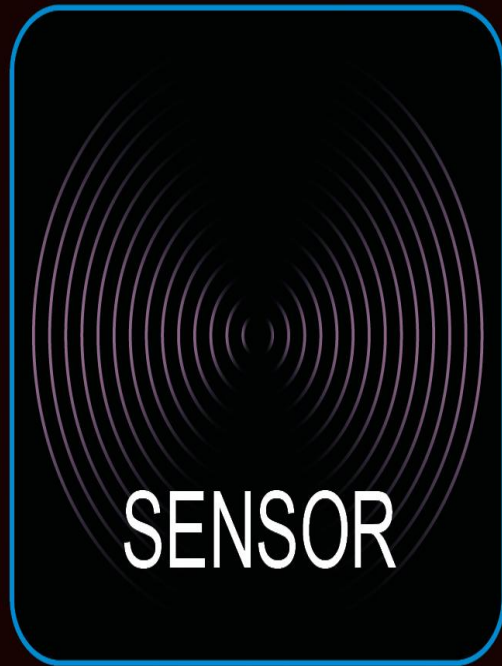


RUTRONIK TECHTALK MEETS



08.06. - 10.06.2021 | **ONLINE**

EV-Charging Connectors from JAE

Levon Altunyan
Product and Marketing Manager



WE CONNECT

EV Charger Solutions

10th June 2021

Hello!



I am Levon Altunyan

I am here because I would like to show you our EV charging solutions for CHAedMO and CCS

You can contact me at: AltunyanL@JAE-Europe.de



Joined
CHAdeMO
2010



KW02
Release
2017



Joined
CharIn
2019



**KW1C and
KW02**
release
2021



KW1
Release
2015



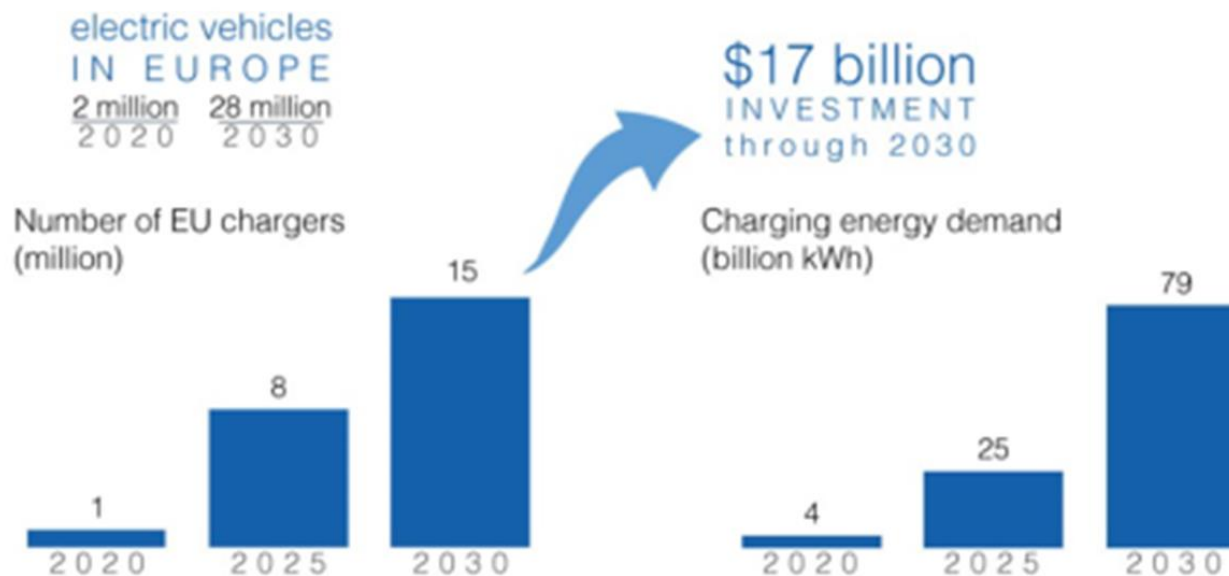
KW03
Release
2018



KW04
Release
2020

First to
Market with
Replaceable
Front Cap





Source: McKinsey&Company

McKinsey also estimates that the EU's need for chargers will require some \$17 billion of investment from 2020 to 2030, to enable some 24 million chargers.



Introducing JAE's EV Charging Connector Actively Used In The E-mobility Market

The market looks for innovative solutions that drive continuous cost improvements.

Thus, we have good chance to promote our solution to customers which are cautious of the **Total Cost of Ownership**.

Product	KW1 (CE) / KW1 (UL)	KW02	KW03	KW04
				
Standard	CHAdeMO 1.2 IEC62196-3	CHAdeMO 1.2 V2H Guideline 2.1 IEC62196-3	CHAdeMO 1.2 V2H Guideline 2.1 IEC62196-3	CCS Type-2 IEC62196-3
Rated Current	125 A	25 A	80 A	150 A; 200 A
Rated Voltage	500 VDC	450 VDC	500 VDC	1000 VDC
Approvals	UL /CE	CE	UL /CE	CE
Operating Temp.	CE: -30°C... + 50°C UL: -30°C... + 40°C	CE: -30°C... + 50°C	CE: -30°C... + 50°C UL: -30°C... + 50°C	CE: -30°C... + 50°C
Charging Type	Quick Charge	Slow Charge (w/V2H, V2G)	Mid-Charge (w/V2H, V2G)	Quick Charge

Products Coming Soon



KW1C – 125A CHAdeMo V2X CE

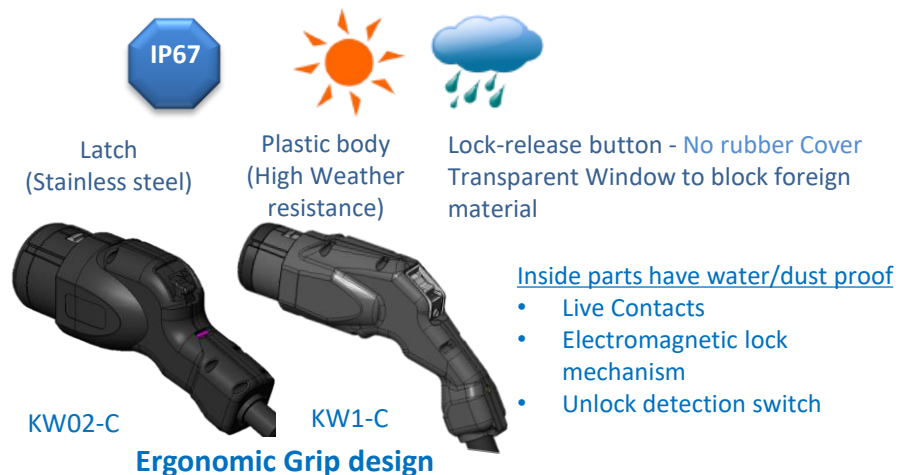


KW02 (Gen2) - 37A CHAdeMo V2X CE (UL to follow)



Product Features

- Light, compact plastic body with enough robustness
- User Friendly
 - Just Plug in w/o any button operation
 - One button action for unlocking
 - Ergonomic Grip design
- High reliability
 - Stainless steel used in Latch
 - High weather resistance in Resin part
 - Block foreign material around release button
 - Inside parts switch LED are water/dust proof (KW1, KW1C)
- Emergency release/removal and recovery are possible
- Alcohol-resistant for antibacterial cleaning



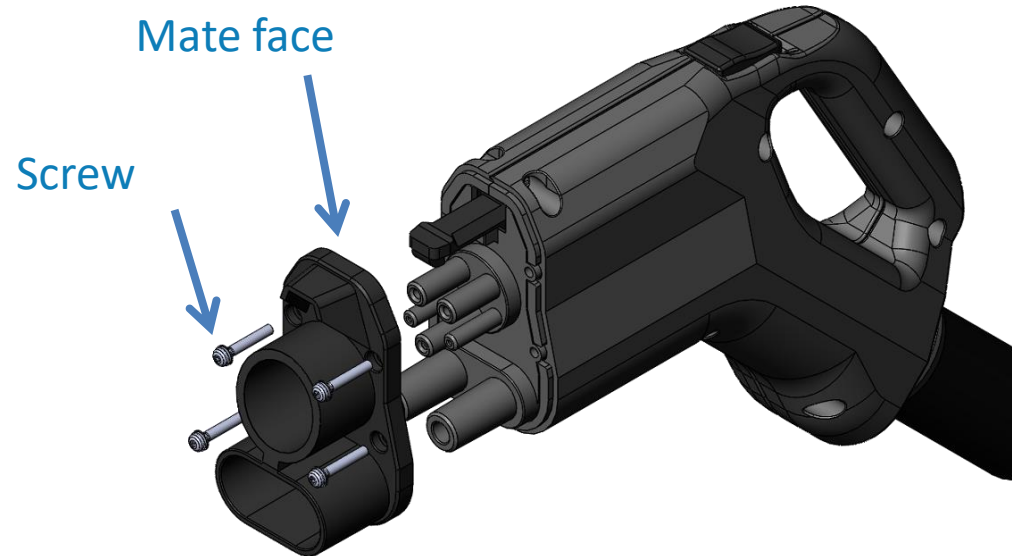
	V2H/V2G		Mid-charge/High Power	
Product	JAE		JAE	
	KW02	KW02-C	KW1	KW1-C
Cable OD [mm]	23.5	20.3	32.3	27.0
Cable Weight	400[g/m]	420 [g/m]	1260 [g/m]	1250 [g/m]
Rated Current	25A	37A	125A	125A
Connector Size [mm]	280 * 134	225 * 123	284 * 205	289 * 168
Latch Monitor	Yes		Yes	
Solenoid Type	3-wire, Self-holding (CHAdEMO's Recommendation for V2H)		2-wire type	
Solenoid Monitor	Yes		Yes	
Fuse	Yes, 35.5A	Yes, 35.5 or 50A		
No.3 (DC12V supply)	Yes		No	Yes
CHAdEMO	Yes (V2H guidelines)		YES (CHAdEMO 1.2)	YES (CHAdEMO 1.2 & V2H guidelines)
CE	Yes	Yes	Yes	Yes

- Movie KW04



Replaceable Mate Face

Same for KW04 (EU) / KW05 (US)



Advantage

Cost reduction of EV connector full assembly replacement

- Remove the mating face and replace the new one
- Replace only the outer part to reduce costs



Mate face is easily broken when charging connector is dropped.

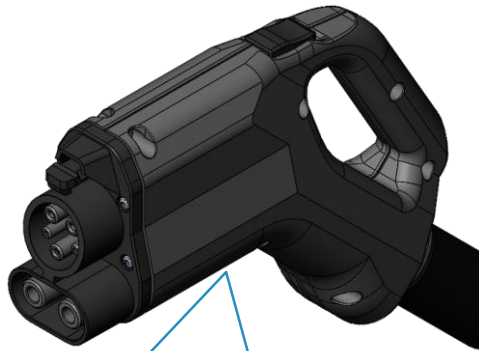
Source: CharIn Discussion in 2020.

Reduce the Replacement costs

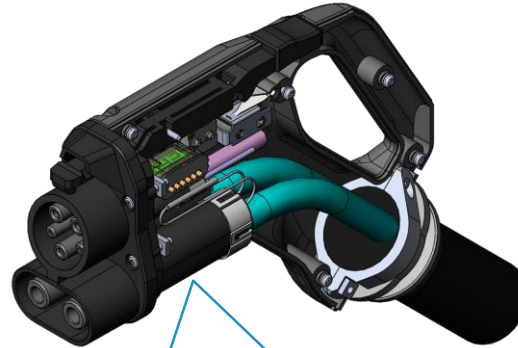
Other Feature: Double Insulation

Same for KW04 (EU) / KW05 (US)

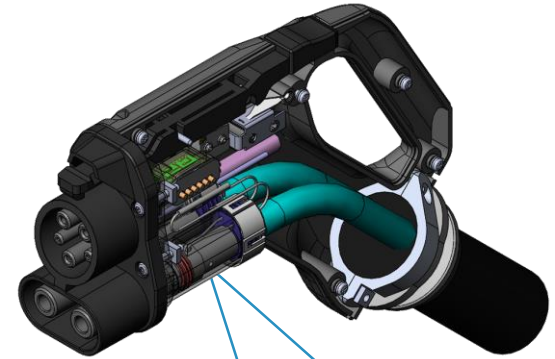
Double Insulation structure



1st Insulation
(Outer body)
High Weatherability



2nd Insulation
(Inner Housing)
Waterproof area



Contact
(Live Parts)

Advantage

Risks associated with damaged connector

- Users can touch/access Live power Contact
- Short circuit caused by environmental moisture

Double Insulation structure reduces critical risk



Exploded connector, Daegu, South Korea, 2018. The explosion was allegedly caused by a short-circuit [7].

Source: <https://www.news1.kr/articles/?3364372> 11

Automatic charging using robots

Volkswagen



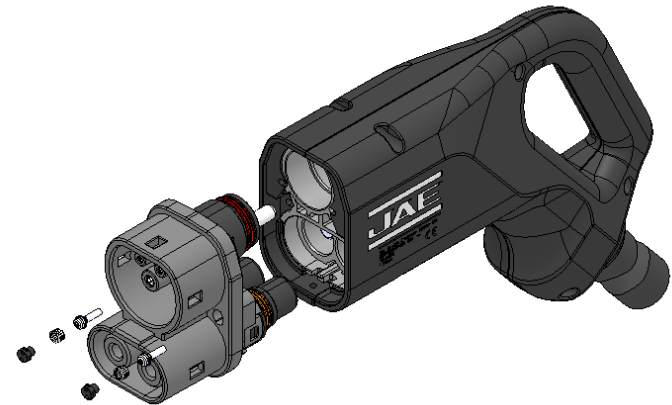
Tesla



KUKA

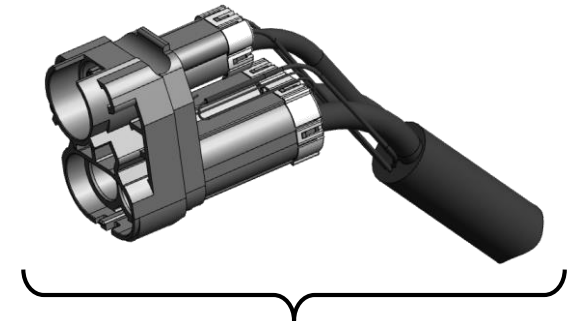
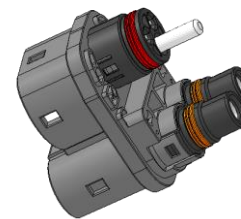


Proposal of KW04



Internal housing

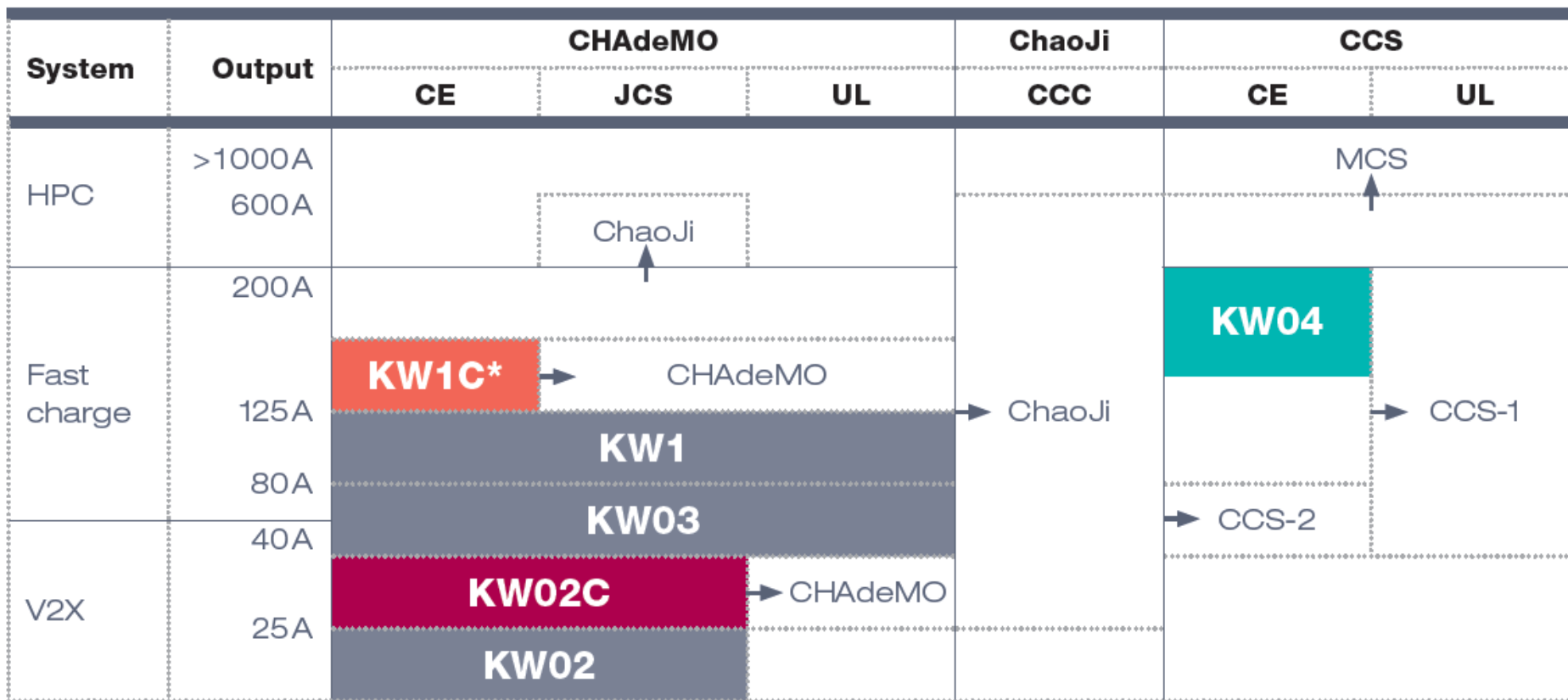
Mating part



Built into the robot arm

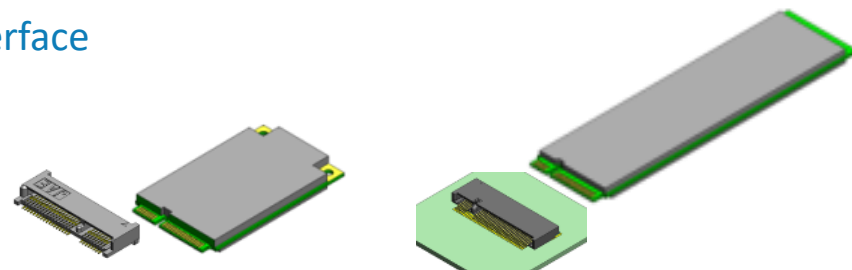
Proposal to manufacturers with both robot and charging technology to the market

KW-series Roadmap



* KW1C works also with V2X

- Integrated Wireless Network Interface Controller
- PC and Server internal communication transmission interface
- Internal integrated GPS card interface
- USB transmission interface
- SIM card for GSM and WCDMA applications
- Solid State Hard-Drive (SSD) applications
- Memory module interface



		PCI express mini card		M.2 card modules (Gen4)	
JAE products name		MM60 series		SM3 series	
Connector side	Pitch[mm]	0.8		0.5	
	Pin No.	52		67	
	Height[mm]	4		1.2, 2.15, 3.1, 4.1	➔ Multiple height variations
	Width[mm]	29.9	Mounting area: 287.04mm ²	21.9	Mounting area : 166.44mm ² ➔ 42% size down
	Depth[mm]	9.6		7.6	
Module side	Board thickness[mm]	1		0.8	
	Module thickness	4.85		2.2 Max(Single side module) 3.73 Max(Double side module)	
	Module depth[mm]	50.95 (Full-mini card) 29.80 (Half-mini card)		26, 30, 40, 60, 80, 110	
	Module width[mm]	30		16, 22, 30	

Thank you
for your attention

WE CONNECT