



Hyundai FCEV 氫能重型商用車 商品說明

ELEC CITY 市區公車 & UNIVERSE 國道巴士



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Hyundai Elec City FCEV 市區巴士發展歷史/營運實績

ELEC CITY



[2006] 德國世界盃 測試運行



[2013/6~] 首爾世界盃
公園綠能導覽車



[2015/5~2016/4]
蔚山市測試運行



[2018/2]
平昌奧運 接駁巴士



[2019/6]
37部巴士·於首爾
以外7大城市試運行



[2020/8]
第4代車型量產

ELEC CITY FCEV 14年歷史，目前已至第4代車型



(2006) 第一代

(2009) 第二代

(2018) 第三代

(2020) 第四代

- 2019~2023/11月 韓國已投入 582台FCEV巴士進行商業運轉 (總行駛里程：超過2300萬公里)
- 2022 奧地利政府採用ELEC CITY FCEV 作為維也納零污染市區公車
- 2024 韓國氫能委員會，預計持續投入 2700台FCEV商用巴士 進行營運

Hyundai Elec City FCEV 市區巴士發展歷史/營運實績

ELEC CITY

2021-22 奧地利 (維也納) 營運

Austria, Elec City Fuel Cell

Hybus Project in Vienna

Hyundai's Elec City Fuel Cell has been selected for the HyBus Implementation project. For the project, three ELEC CITY Fuel Cell Buses are being used in a large-scale national long-term demonstration in urban, regional and alpine public transport in the east (Vienna), south (Graz) and west (Tyrol) of Austria.

Related articles:

[Hyundai Motor to hand over ELEC CITY Fuel Cell Bus to city bus operator in Austria](#) September 2021

[Hyundai's Elec City Fuel Cell now deployed in regular routes in Vienna, Austria \(Korea\)](#) February 2022



2021 德國營運

Germany, Elec City Fuel Cell

Hyundai Motor is working with two German bus operators to conduct in-service trials of the Elec City Fuel Cell in Munich.



Related articles:

[Hyundai Motor's Elec City Fuel Cell Bus Begins Trial Service in Munich, Germany](#) June 2021

2020 中東 (沙烏地阿拉伯)

Saudi Arabia, Elec City Fuel Cell

Hyundai Motor and Saudi Aramco signed a MoU to roll out FCEVs in Saudi Arabia. Hyundai is testing two Elec City Fuel Cells to verify their economic feasibility.

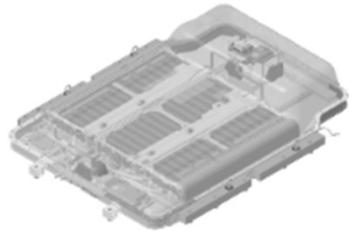


Related articles:

[Hyundai Motor exports hydrogen vehicles to Middle East for first time](#) September 2020

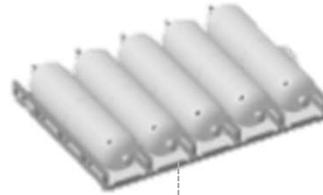
Elec City 氫能市區巴士 原廠整合式氫能動力

ELEC CITY



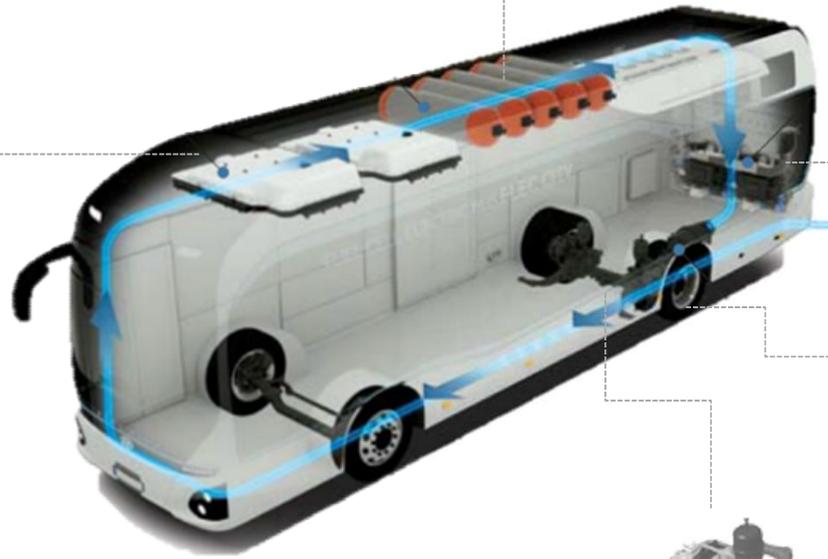
鋰電池

- 容量：78.4kWh
- 水冷設計，提升耐久性



氫燃料儲氣瓶

- 容量：875ℓ (共5氣瓶，每支175ℓ)
- 氫燃料總重：33.99 kg
- 氫燃料加注最高壓力：700 bar



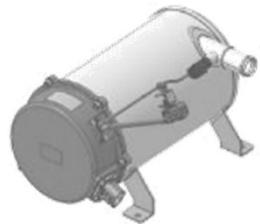
氫燃料電池堆

- 最大發電功率：180kW (90kW * 2組)
- 鋁合金製造本體



中央馬達

- 製造商：德國ZF
- 最大輸出：160/180kW (245hp)
- ※ 雙動力輸出模式



水加熱系統

- 利用燃料電池堆廢熱加熱，改進氫燃料效率



後軸

- HMC韓國 (ZF特別客製)
- 噪音改進結構設計

Hyundai FCEV 同步整合氫燃料電池/巴士車體底盤/控制系統，技術領先同業

Elec City 氫能市區巴士 超越同級性能表現

ELEC CITY

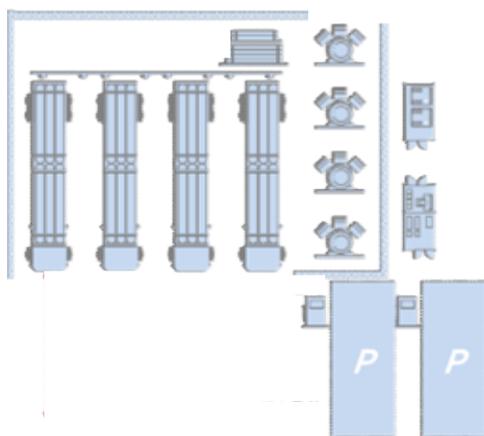
加滿氫燃料最高續行 **550 公里**，確保在實際行駛模式下 **16.25km/kg** 燃料效率

※ 行駛條件：GVW (48*65kg)，包含坡道及一般車站停靠，空調/暖氣關閉狀態
※ 以上性能表現，因各地區行車狀況將產生差異



氫燃料加滿最短僅需 **14 分鐘**

□ 巴士加氫站設施示意



□ 加氫作業時間

	700 bar加氫狀態
單次加氫量	25.94公斤
	7.27公斤@112bar → 33.21公斤@700bar
建議加氫週期	400km
單次加氫時間 (每台)	14-20分鐘

Hyundai領先FCEV科技，展現同業最高續航里程550km & 對應700bar高壓加氫

Elec City 氫能市區巴士 外觀

ELEC CITY



LED 日間行車燈



管狀車外後視鏡



LED尾燈組 (煞車燈 / 尾燈)

Elec City 氫能市區巴士 內裝

ELEC CITY

內裝採用深藍色系為基底，追求更精緻質感，同時確保車輛日常維護管理便利性



※ 以上示意照，實際配備因訂單內容而異；各項配備以國內客運需求、法規為準

安全配備

前門/中門超音波偵測防夾

Advanced safety devices are applied to prevent accidents while passengers are stuck



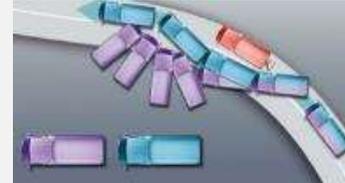
停車後方警示系統

Driver driving safety and parking convenience



VDC車輛動態穩定系統

Active brake control according to driving condition to enhance driving safety



輪椅乘降坡道板

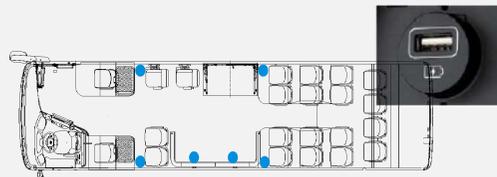
To prevent residual failures and provide easier management



便利配備

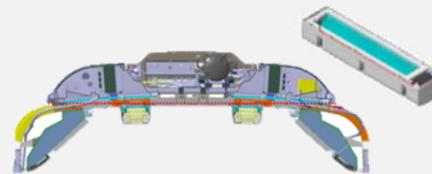
USB充電插槽

Configure a total of 6 USB charging ports in 4 LH and 2 RH sections on the seat side panel to improve passenger convenience



電子空氣清淨機

Application of air purifier equipped with air conditioner satisfies 150 μ g of fine dust level recommendation



Long door Partition size

The gap between the lower part of the front door and the middle door made to 50mm to prevent passengers from getting stuck when opening and closing the middle door.





同業 FCEV 巴士規配比較

品牌/車型	HYUNDAI ELEC CITY 低底盤市區巴士	HYUNDAI Universe 國道巴士	TOYOTA CAETANO	TOYOTA CAETANO	BENZ eCitaro
車體設計	HYUNDAI	HYUNDAI	CAETANO	CAETANO	M.Benz
氫燃料動力	HYUNDAI	HYUNDAI	TOYOTA	TOYOTA	M.Benz
全長	10,995 mm	11,750mm	10,740 mm	11,995 mm	單車廂12,135mm/ 雙車廂18,125mm
全寬	2,490 mm	2,495mm	2,500 mm	2,500 mm	2,550mm
全高	3,400 mm	3,740mm	3,458 mm	3,458 mm	3,400mm
車門數	2 DOORS	1 or 2 DOORS	2 or 3 DOORS	2 or 3 DOORS	2/3/4 doors
馬達系統	ZF MOTOR CENTRAL MOTOR (180 KW)	CENTRAL MOTOR (335 KW)	Siemens permanent- magnet synchronous (180 kW)	Siemens permanent- magnet synchronous (180 kW)	ZF AVE 133 with two wheel hub motors; 250 kW (2 x 125 kW each)
H2 Tank 儲氫容量	5*175 L (max. 34 kg)	5/6*175 L (max. 34/41 kg)	5*312L (max. 37.5kg)	5*312L (max. 37.5kg)	H2 Tanks 1,435L (max. 25~35kg)
H2 Charging Bar	700 Bar	700 Bar	350 Bar	350 Bar	350 Bar
Safety	<ul style="list-style-type: none"> VDC (車輛行駛動態控制系統) Rear Parking Alarm system 	<ul style="list-style-type: none"> SCC/FCA/LDWS/DAW等ADAS配備 	<ul style="list-style-type: none"> ABS、EBS、ASR、ESC、DFW、LDW、BCW、車距監控警告(HMW)、ISA等安全配備，符合歐洲最高等級的安全規範 CCS Type 2 - AC/DC Charging 	<ul style="list-style-type: none"> TPMS、FCA、AVM、ESP、DAW等配備 	
最高續行里程	550KM	635KM	Up to 400 km	Up to 400 km	Up to 400km

註1：高速巴士(國道客運)無站位。

註2：(甲類)大客車全長不得超過十二·二公尺 / 全寬不得超過二·五公尺 / 全高不得超過三·五公尺。

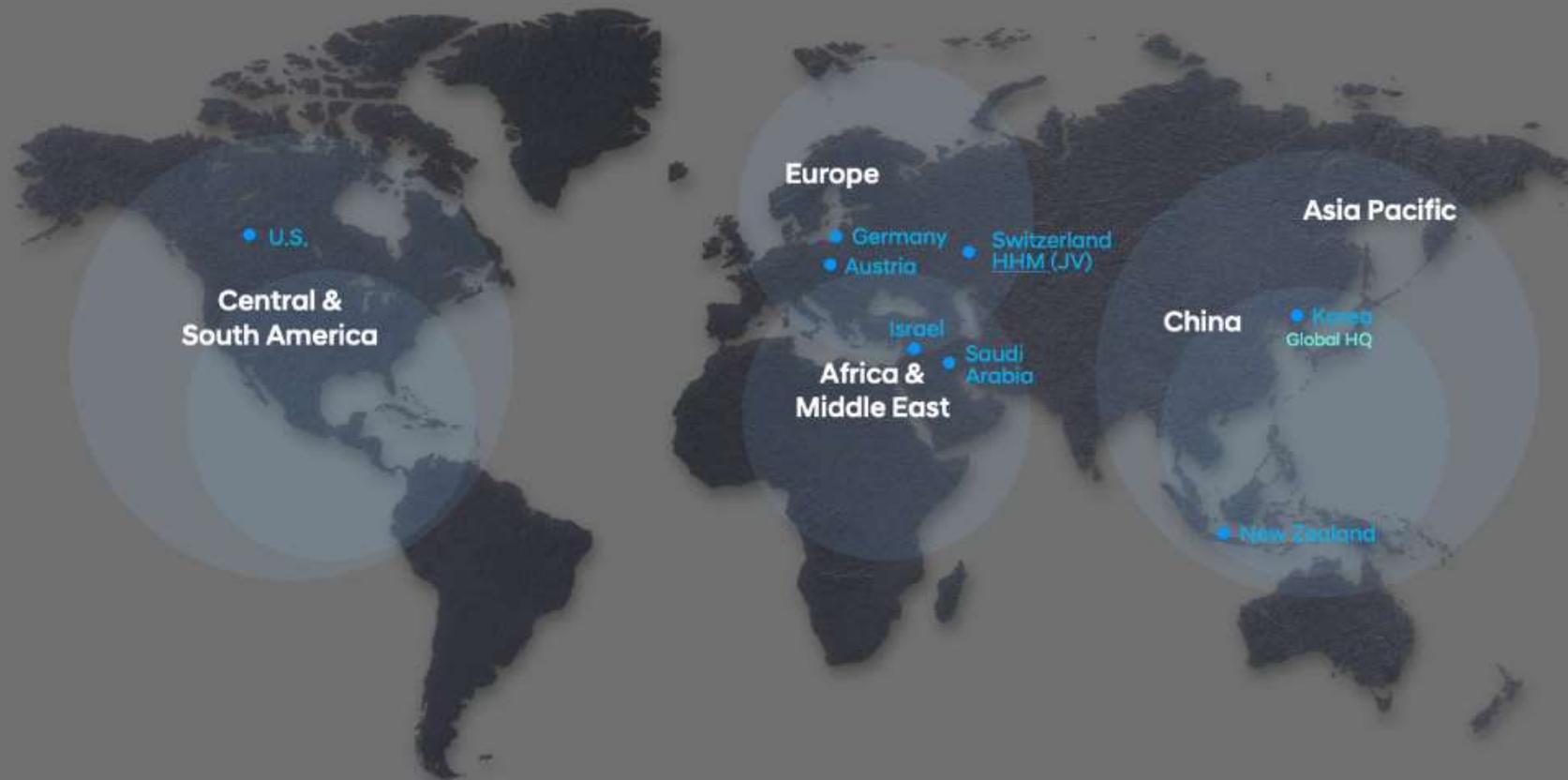


附件

Hyundai FCEV 行銷國際：美、歐、非、中東、中國、亞太

Our fuel cell trucks and buses are currently deployed in 8 countries, and we expect the figure to grow exponentially.

*Countries deployed (7) : Switzerland, U.S., Germany, South Korea, Austria, Israel, New Zealand and Saudi Arabia





全球 FCEV 氫能車銷售表現

✓ 2021~22全球FCEV氫能車(乘用)銷售/市占率表現 (品牌別)

Rank	Manufacturer	Model	2021. 1~12	2022. 1~12	Growth Rate	2021 M/S	2022 M/S
1	Hyundai Motors	NEXO	9,227	11,179	21.2%	52.8%	54.0%
2	Toyota	Mirai	5,935	3,691	-37.8%	34.0%	17.8%
3	Honda	Clarity	294	209	-28.9%	1.7%	1.0%
4	MAXUS	EUNIQ 7	9	204	2166.7%	0.1%	1.0%
Others			2,009	5,407	169.1%	11.5%	26.1%
Total			17,474	20,690	18.4%	100.0%	100.0%

* The FCEV sales volume of some countries are not aggregated. The 2022 data do not include those countries.

✓ 2021~22全球FCEV氫能車(乘用)銷售/市占率表現 (國家別)

Country	2021. 1~12	2022. 1~12	Growth Rate	2021 M/S	2022 M/S
Korea	8,555	10,336	20.8%	49.0%	50.0%
China	1,779	5,436	205.6%	10.2%	26.3%
US	3,341	2,708	-18.9%	19.1%	13.1%
Japan	2,453	846	-65.5%	14.0%	4.1%
Europe	1,179	1,275	8.1%	6.7%	6.2%
Others	167	89	-46.7%	1.0%	0.4%
Total	17,474	20,690	18.4%	100.0%	100.0%

* The FCEV sales volume of some countries are not aggregated. The 2022 data do not include those countries.

資料來源 SNE Research: https://www.sneresearch.com/en/insight/release_view/74/page/0

- 2022年 Hyundai 全球FCEV氫能車銷量突破1.1台 (市佔54%)，連續4年銷售No.1

Hyundai UNIVERSE FCEV 國道巴士

UNIVERSE



UNIVERSE FCEV巴士 外觀

UNIVERSE

兼具造型與功能性的外型



LED頭燈&日行燈



車側通氣窗



車尾整流功能
車頂護蓋



UNIVERSE FCEV巴士 內裝

UNIVERSE



大容量車內空氣清淨機



UNIVERSE FCEV巴士 性能表現/市場實績

UNIVERSE

Uncompromising Performance.

UNIVERSE Fuel Cell drives with powerful torque just as any electric vehicles, but with less weight of the batteries. Thus, driving UNIVERSE Fuel Cell will deliver superior acceleration beyond internal combustion engine powertrains.

Hydrogen Tanks 01

41/34 kgH₂ (700 bar, 6 each / 5 each)

Batteries 02

48 kWh (2 x 24 kWh each)

Fuel Cell System 03

180 kW (2 x 90 kW each)

Motor 04

335 kW / 1,200 Nm



Hydrogen Safety Mechanism

To ensure the highest level of safety, it has undergone comprehensive safety testing from drop tests and exposure to an open flame to ballistic penetration.

Water

Emission of Only H₂O

Fuel cell systems combine oxygen and hydrogen to produce pollutant-free energy and emit pure water only.

635 km

No Shortage of Range on a Single Charge

The UNIVERSE Fuel Cell can travel up to 635 km* on a single charge based on inter-city model.

Quick Recharge

Suitable for Any Day-to-Day Operation

Charging a UNIVERSE Fuel Cell is quick and easy. A shorter charging time enables efficient operation.

Reliable

Safety and Performance Proven in Korea

UNIVERSE Fuel Cell has been in operation in Korea since 2019, and more orders have been made every year since its launch.



- 單次加氫最大續行里程達 635公里，馬達最大輸出335kW
- Universe FCEV營運實績：
 - 目前擔負往返於仁川機場/首爾市區間運輸



THANK YOU!