EV Charging Simulation Tester

This charging safety tester terminal consists of an EV charger, integrated with High Voltage insulation, Potential Equalization, and Battery Management System (BMS) Communication.

In compliance with the latest Chinese GB-NEV Safety Technical Requirements, this computerized Charging Terminal Tester is capable of conducting comprehensive and effective safety tests for EV through real charging simulation and data communication with the electric vehicle.

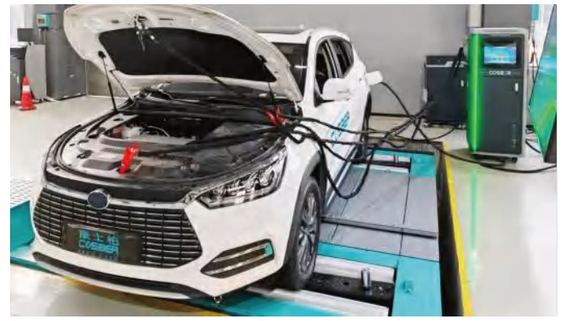
EV Charging & Discharging Test Functions

Test Items			Criteria
EV Battery Safety (BMS)	Battery on Charging	Maximum temperature of the battery	Ternary lithium battery≤ 60 ˚C Lithium iron phosphate battery ≤ 65˚C
		Maximum voltage of a single battery	Ternary lithium Battery≤ 4.4V Lithium iron phosphate battery ≤ 3.7V
		Minimum voltage of a single cell	≥ 3V
		BMS total voltage indication accuracy	-1%~1%
	Battery on Discharging	Maximum temperature of the battery	Ternary lithium battery≤ 60˚C Lithium iron phosphate battery≤65˚C
		Minimum voltage of a single battery Cell	Ternary lithium battery＞1.8V Lithium iron phosphate battery＞1.5V
	Capacity retention rate of the battery		≥ 70%
Driven Motor Safety	Drive motor temperature		≤ 175°C
	Motor controller temperature		≤ 95°C
Electrical Control System Safety	DC/DC converter temperature		≤ 95°C
EV Body Electrical Safety	Insulation resistance of DC charging socket		≥ 100 Ω/V
	Insulation resistance of AC charging socket		≥ 1MΩ
	Potential Equalization between EV body and Tester		≤ 0.1Ω
	Potential Equalization between test Point 1 and Point 2		≤ 0.2Ω

EV Charging & Electrical Safety Test Process

1 EV Electrical Safety & Charger Plug in

Connect the 3 probes of Potential Equalization from the tester terminal to the EV. Plug both the AC charger and DC charger from the tester terminal into the charging socket of the EV.



2 Safety Self-Test and Charging Communication with BMS

The tester terminal will automatically initiate the Safety Self-Test (for Insulation & Potential Equalization) and communicate with the EV's BMS (Battery Management System). The test status of each step throughout the entire process will be displayed on the tester's moitor.

Tips: The health of BMS is critical to EV's safety, dysfunction of BMS in EV cause > 50% of safety issues.

3 Continual Charging Simulation & Monitoring

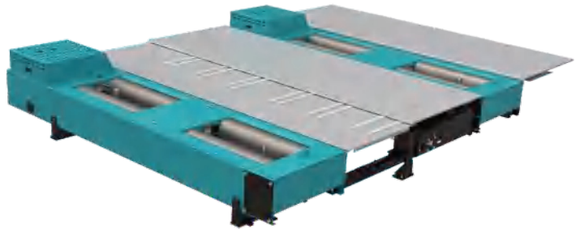
After the Safety Self-test, press "start" to initiate the Battery Charging process (5 mins). The tester will continuously monitor the parameters of BMS and the battery during the charging process. The test report will be generated after the charging test.

Equipment Parameter

Operational Power	AC 380V+10%，50/60HZ+5%
No-Load/Full Load Power Consumption	20/ 40-60kW
Operational Environment	Temperature :0~40°C; Humidity:20~90%RH
Dimension (WLH)	670*620*1650 mm
Equipment Weight	150Kg

Z-Shaft Interlinked 4WD Dynamometer for EV

- Patented Z-Shaft interlinked Dynamometer designed for all types of EVs with different drive modes: Front-wheel-drive, Rear-wheel-drive, and Four-wheel-drive.
- Real-time synchronisation of four-wheel drive is achieved through automatic wheelbase adjustment (2300-3300mm). Simply input the value of wheelbase can automatically adjust the front and rear rollers bench via the Z-shaft transmission.



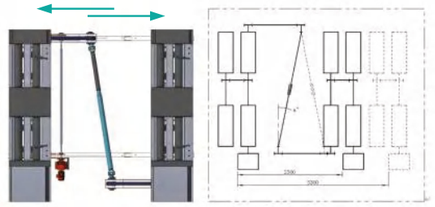
Why 4WD Synchronized?

Most of the 2WD EVs have high-accuracy wheel traction control. However, if the four wheels are not moving at the same speed, power take-off of the EV could be limited or suppressed.

For All-Wheel Drive (AWD) EV, the front wheels and rear wheels are usually powered by two different motors with different power grades. As a result, the front wheels and the rear wheels will not have the same speed during a regular DYNO test.

To address this issue, we must use the interlinked 4WD Dynamometer for a perfect simulation of the synchronous operation of wheels during testing.

Patented Z-Shaft Interlinked 4WD



EV Dyno Test Functions

Discharging Simulation

4WD Cycle Running at 0-130km/h on the Dyno chassis for the Battery Discharge Simulation.

BMS Monitoring and Driving Capacity test

Real-time monitoring of EV's driving state during the Dyno test (via EV-OBD or Dashboard). It is also capable of testing the stability of an EV's driving under specified conditions.

EV Output Power and Electric Regenerative Braking System Test (Optional)

EV output power test is conducted under a synchronous 4WD running condition.

Comparison of drag power test for ERBS of EV during its cruising cycle (optional)

Technical Data

Item	4WD EV Dyno (Z-Shaft Interlinked)
Maximum carrying vehicle mass	5000 kg
Maximum bearing Axle mass	3000 kg
Maximum absorption driving force	0~6000 N × 2
Power test speed range	0-200 km/h
Roller diameter	Φ216 mm
Roller length	1000 mm
Center distance of rollers	442 mm
Wheel diameter	500~800 mm
Inside wheel thread	700 mm
Outer wheel thread	2700 mm
Minimum vehicle wheelbase	2300 mm (with a design option of 1800mm)
Maximum vehicle wheelbase	3300 mm (with a design option of 2800mm)
Basic inertia	907 kg
Eddy current rated power	160 kW × 2
Back drag motor power	7.5kW to 105km/h
Compressed air pressure	0.6~0.8 MP a
Equipment pitwork Dim.LWH	4000*4330*550 mm

Electric Vehicle Discharging Dyno System

Electric Vehicle Discharging Dyno Interface