



ONE STOP SHOP FOR
OFF-ROAD ELECTRIC SOLUTIONS AS
**CONTROLLER, PMS MOTOR AND
INTELLIGENT SYSTEM**



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AND **INTELLIGENT SYSTEM**

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SOLUTION

THM Hydraulics is committed to electric controllers, PMS motors, intelligent system and one-stop solutions for all kinds of electric forklifts, storage vehicles, autonomous forklifts, AWP, low-speed manned electric vehicles, electric loaders, AGV, electric wheelchairs and other equipments. We adopt high-power components and advanced control algorithms to ensure stable operation of the equipments and to adapt to various harsh environments. At the same time, multiple safety protection mechanisms prevent abnormal situations such as over-voltage, over-current, and overheating to ensure the personnel safety and equipment safety.



Solutions for forklift:



0-10T EBC- Truck



1.5-3.5T 3-Wheel Forklift

Specification:

Voltage: 48V / 80V / 96V / 336V

Rated current: ≤600A

Adaptive battery: lead-acid battery / lithium battery

Features:

1. Provide single controller/solution as controller and motor, to meet the use of AC motor or PMS motor;
2. Internal or external contactors, single or dual chips holding EN 1175 certification for options;
3. The software meets the requirements of TSG81;
4. Meet EN1175 and ISO13849 safety certifications.

Products:

Controller	<p>G2 S1 D1 S2 H30</p>
PMS Motor	<p>pump motor walking motor</p>
Intelligent display	<p>M101P M28E M50E MS</p>

solutions for storage vehicle and AGV



Reach Truck



Autonomous Forklift



Pallet truck

Specification:

Voltage: 24V / 48V / 80V

Rated current: ≤400A

Adaptive battery: lead-acid battery / lithium battery

Features:

1. Compatible with all kinds of industrial vehicles, to meet 24V / 48V / 80V platform applications;
2. Isolate CAN communication to avoid electromagnetic interference;
3. Dual chip for option, TUV EN13849 & EN1175 certification requirements passed;
4. Solutions include controllers and EPS, ensuring flexible steering, high operability and high comfort;
5. Compatible with DC motors, AC motors, PMS motors (walking & oil pump).

Products:

Controller	<p>G2 S1 S2 E1 S0 VCU</p>
Intelligent display	<p>M101P M28E M50E MS</p>

Solutions for scissor lift



Electric scissor lift

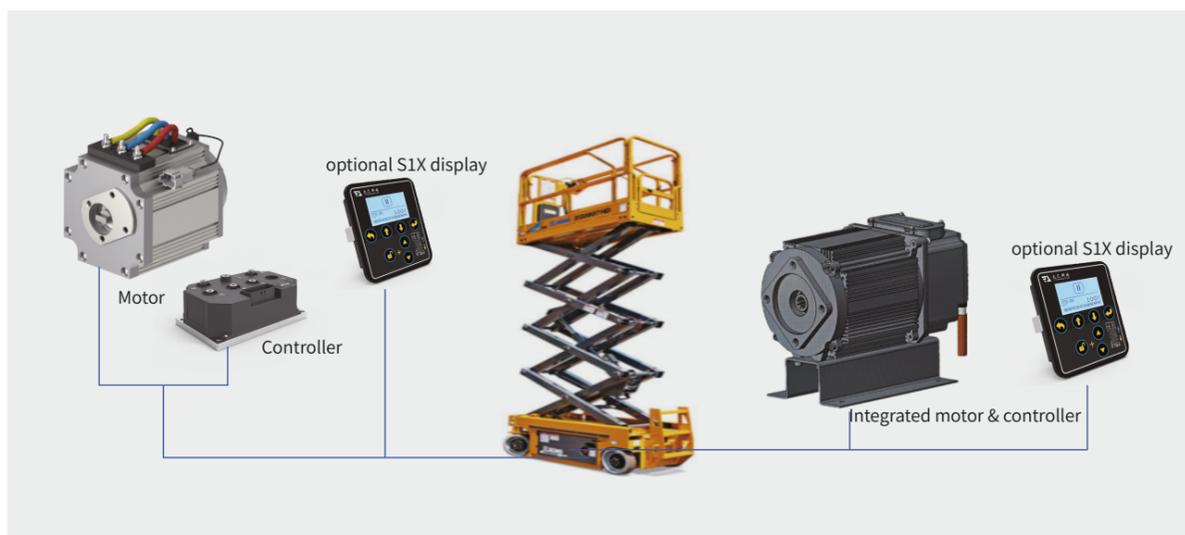
Specification:

Voltage: 24V
 Gradient: 25%
 Rated current: 250A
 Adaptive battery: lead-acid battery / lithium battery

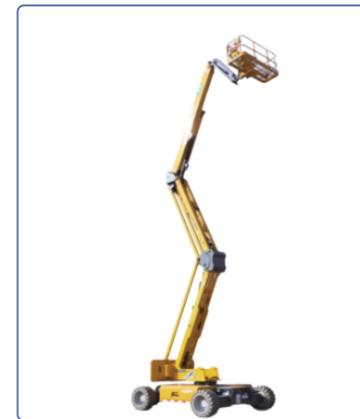
Features:

1. Integration of ECU and MCU in one controller, compact structure, advanced performance;
2. Optional dual-chip, have passed TUV EN13849 & EN1175 certification requirements;
3. Function extension identification , such as: Resolver), CAN communication,UART communication.

Optional solutions:



Solutions for AWP:



Articulated boom lift



Straight boom lift

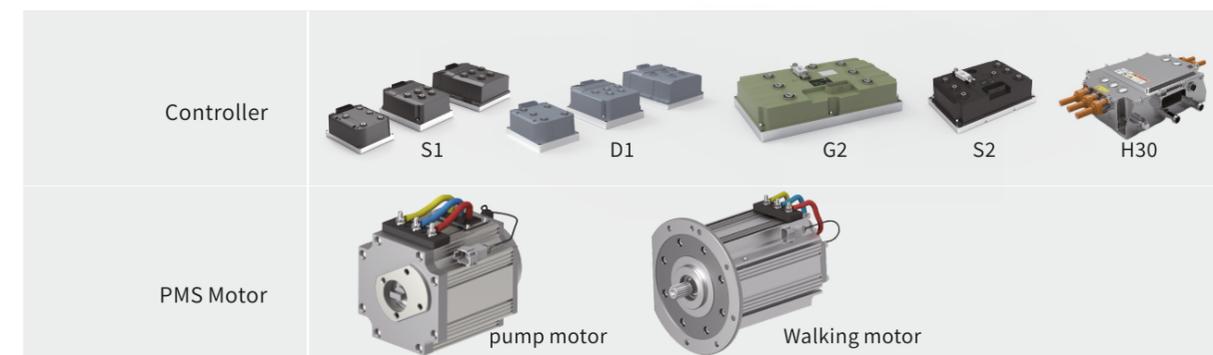
Specification:

Equipment type: Articulated boom lift, Straight boom lift
 Equipment height: 16-45m
 Drive mode: side drive (2drive/4drive), Bridge drive
 Voltage: 48V /80V /336V
 Rated current: ≤ 500A
 Adaptive battery: lead-acid battery / lithium battery

Features:

1. High performance, high reliability, high adaptability;
2. 4 driving wheels with EDC technology providing steady lifting;
3. Optional dual-chip, have passed TUV EN13849 & EN1175 certification requirements;
4. Function extension identification , such as: Resolver), CAN communication,UART communication.

Product:



Solutions for low speed vehicle



Golfcart



ATV



UTV

Specification:

Voltage: 48V / 80V / 96V

Rated current: ≤450A

Adaptive battery: lead-acid battery / lithium battery

Features:

1. High performance, high comfort;
2. Protection grade :IP67;
3. CE certification;
4. Standard protocol for lithium batteries and meters;
5. Support AC and permanent magnet motor;

Products:

Controller	<p>S1 G1</p>
PMS Motor	<p>Walking motor</p>
Intelligent display	<p>M101P M28E M50E MS</p>

Replacement solutions for the aftermarket

Model Precedent of Club car



Model RXV of EZ-GO



Advantages:

1. Wide range of speed adjustment and smooth system, bringing a comfortable operation experience;
2. Rich external interfaces, high configuration;
3. Support remote management, alert and alarm , parameter query and modification, operation data analysis and other networking functions.



Miniature loader



Small loader



Driverless logistics vehicle

Specification:

Voltage: 72V / 80V / 96V / 336V

Features:

1. High efficiency, high reliability, high power density, large starting torque;
2. Support energy management strategy and drive control strategy; Fault diagnosis and treatment strategy;
3. function extension identification , such as: Resolver, CAN communication,UART communication.

Product:

Controller	 G2  S1  H30
Intelligent display	 M101P  M50E

Specifacation:

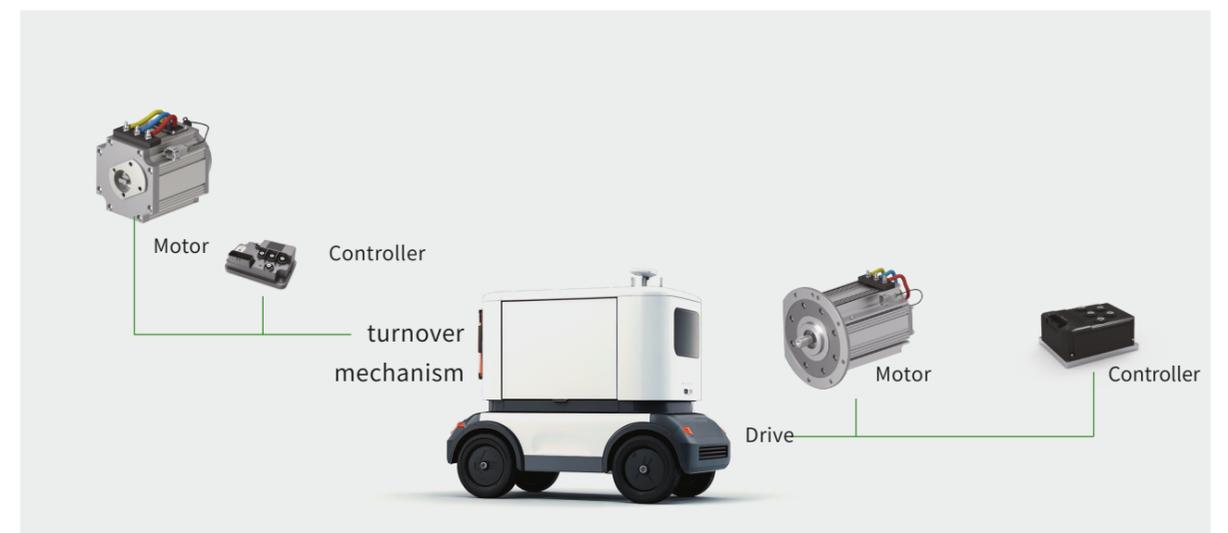
Voltage: 72V/80V/96V

Rated current: ≤400A

Adaptationvehicle drive, turnover mechanism

Adaptive battery: lead-acid battery / lithium battery

Optional solutions :





Electric wheelchair



Electric mobility scooter

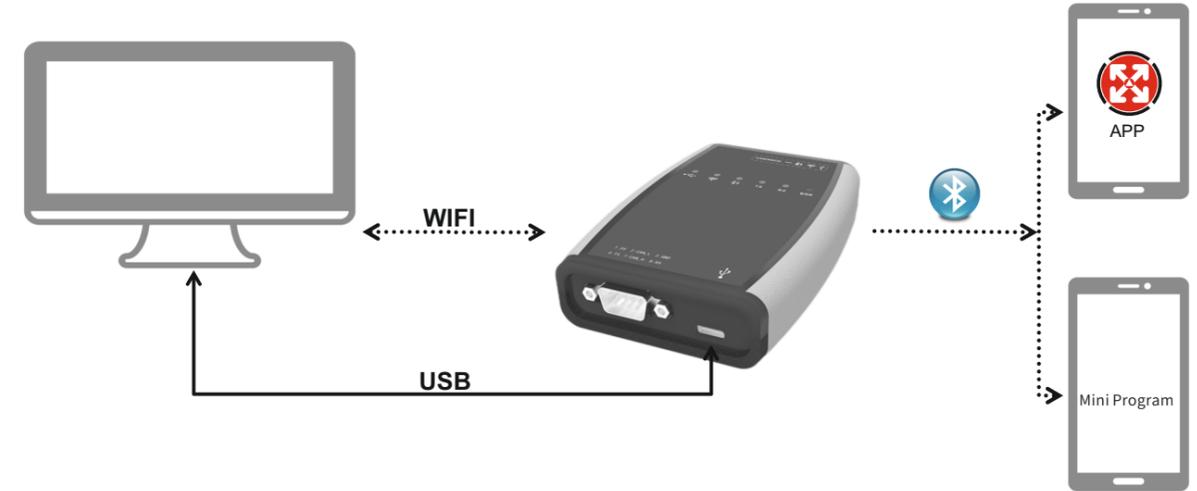
Specification:

1. Adopt advanced control algorithm to effectively improve the maneuverability and comfort ;
2. Controller passed ISO7176-14 certification;
3. Suitable for DC motor;
4. Can query and modify vehicle parameters, support operation data analysis and other functions;

Product:



Solution:



PRODUCTS

High performance

Adopting efficient control algorithms, with strong load adaptability, and fast torque response.

Using advanced PWM technology to efficiently utilize battery voltage.

Wide range speed regulation, smooth control of acceleration and deceleration, bringing a comfortable operating experience.

High reliability

Using high-reliability low-voltage high-power MOSFET devices.

The power circuit uses a high thermal conductivity aluminum substrate for heat dissipation.

Improved alarm protection function.

High configurability

Providing rich external interfaces: multiple digital and analog inputs, multiple high-power and low-power outputs.

Controller parameters can be monitored on-site using THM upper computer software.

Controller parameters can be monitored on-site using THM instruments.



TS-S1 SERIES ELECTRIC VEHICLE CONTROL SYSTEM

High performance High reliability High configurability

- Optional dual chip model, TUV 13849 & 1175 certification passed;
- Function extension identification such as: Resolver, CAN communication, UART communication and CAN isolate, etc.

Operating Voltage	24V / 48V / 80V / 96V
Max Operating Current	600A
Working Environment Temperature	-40°C-50°C
Storage Temperature	-40°C-85°C
Working Protection Temperature	85°C
Working Humidity	85%
Protection Level	IP67



Applied to: Electric forklifts, Pallet trucks, Stackers, Low-speed electric logistics vehicles, etc.

TS-D1 SERIES ELECTRIC VEHICLE CONTROL SYSTEM

Gold-Award products Discrete device technology of using MOSFET

- Optional dual chip model, TUV 13849 & 1175 certification passed;
- Function extension identification, such as: Resolver, CAN communication, UART communication, CAN isolate etc.

Operating Voltage	24V / 48V / 80V / 96V
Max Operating Current	600A
Working Environment Temperature	-40°C-50°C
Storage Temperature	-40°C-85°C
Working Protection Temperature	85°C
Working Humidity	< 95%
Protection Level	IP65



Applied to: Electric forklifts, Wind power blade pitch, Electric passenger vehicles, Electric logistics vehicles, etc.

TS-S1X SERIES ELECTRIC VEHICLE CONTROL SYSTEM

Compact structure Advanced performance Integrates ECU and MCU

- Optional dual chip model, that has passed TUV 13849 & 1175 certification
- Function extension identification, such as: Resolver, CAN communication, UART communication, CAN isolate etc.

Operating Voltage	24V
Max Operating Current	250A
Working Environment Temperature	-40°C-50°C
Storage Temperature	-40°C-85°C
Working Protection Temperature	85°C
Working Humidity	85%
Protection Level	IP67



Optional S1X smart display

Applied to: Scissor lift

TS-G1 SERIES ELECTRIC VEHICLE CONTROL SYSTEM

Compact structure Economical Adapted to application

Operating Voltage	48V / 80V
Max Operating Current	400A
Working Environment Temperature	-40°C-50°C
Storage Temperature	-40°C-85°C
Working Protection Temperature	85°C
Working Humidity	< 85%
Protection Level	IP67



Applied to: Industrial vehicle, Electric sanitation vehicle, Golf Cart, etc.

TS-S2 SERIES ELECTRIC VEHICLE CONTROL SYSTEM

Compact structure Integrating 3 independent motor controllers

Controlling two AC or PMAC motors and one DC hydraulic pump motor at the same time

	24V / 48V
Max Operating Current	300A
Working Environment Temperature	-40°C-50°C
Storage Temperature	-40°C-85°C
Working Protection Temperature	85°C
Working Humidity	< 85%
Protection Level	IP65 (Optional IP 67)



Applied to: Electric forklifts, Storage vehicles, Stacker trucks, Electric utility vehicles, Low-speed electric logistics vehicles, etc.

TS-G2 SERIES ELECTRIC VEHICLE CONTROL SYSTEM

Compact structure Integrating 2 independent motor controllers and build-in contactors

Operating Voltage	48V / 80V
Max Operating Current	400A
Working Environment Temperature	-40°C-50°C
Storage Temperature	-40°C-85°C
Working Protection Temperature	85°C
Working Humidity	< 85%
Protection Level	IP67



Applied to: Industrial vehicle, AWP, Electric sanitation vehicle, etc.

TS-S0 SERIES ELECTRIC VEHICLE CONTROL SYSTEM

Used to control the DC motor Compact Flexible

Operating Voltage	24V rated
Max Operating Current	90A 10S
Working Environment Temperature	-40°C-50°C
Storage Temperature	-40°C-85°C
Working Protection Temperature	85°C
Working Humidity	< 85%
Protection Level	IPX5



Applied to: Forklifts, Stackers, Logistics vehicles, Mobility, etc.

TS-E SERIES ELECTRIC POWER STEERING SYST

New steering assist strategy with a flexible steering control

Operating Voltage	24V / 48V
Max Operating Current	150A
Working Environment Temperature	-40°C-50°C
Storage Temperature	-40°C-85°C
Working Protection Temperature	85°C
Working Humidity	< 85%
Protection Level	IP65



Applied to: Forklifts, Stackers, Logistics vehicles, etc.

TS-E-GO HANDHELD DEVICE

TS-E-GO handheld device can realize

- CAN / RS232 to USB / WIFI / Bluetooth transmission function.
- Wireless debugging products for mobile phone or laptop.

The end-user can realize the one-click repair function through the application program, and the service engineer can quickly locate the cause of the fault by analyzing the data reported to the background by the handheld device.

- Support USB communication: It can be connected to the computer through USB, can replace the existing CAN card;
- Support WIFI communication: The wireless debugging tool supports WIFI AP mode, after the computer is connected to the hot spot of the wireless debugging tool, the upper computer can normally debug the product;
- Support Bluetooth communication: The wireless debugging tool supports Bluetooth 5.0, and users can use the application program to connect to the tool through Bluetooth to debug the product.



Applied to: Off-road electric vehicles, such as, Industrial vehicles, AWP, environmental sanitation and cleaning equipment, etc.

TS-M101P Intelligent system

- Vehicle instrument: driving control, data display, status monitoring, alarm warning, fault diagnosis and processing, parameter adjustment, multi-language customization;
- Intelligent network connection: support WIFI, Bluetooth, 4G, positioning and other data transmission control and OTA upgrade;
- Intelligent central control: support 360 panoramic images with an external camera for BSD (Blind Spot Detection), DMS(Driver Monitoring System) and IMU (Inertial Measurement Unit) to detect body status.
- Entertainment terminal: support dual channel external speakers, FM, U disk video play, Bluetooth call and music play;



Applied to: Off-road traffic vehicles, such as industrial vehicles, aerial work platforms, environmental sanitation and cleaning equipment, etc.

TS-M28E Intelligent display

- Voltage: 24V/48V/80V;
- 2.8-inch color screen;
- Chinese and English languages;
- Integrated handheld unit, Controller troubleshooting and tuning function;
- Supports password and NFC card identity function;
- Optional remote communication function.



Applied to: Off-road traffic vehicles, such as industrial vehicles, aerial work platforms, environmental sanitation and cleaning equipment, etc.

TS-M50E Intelligent display

- Voltage: 48V/80V;
- 5-inch color screen;
- Build-in multiple UI styles;
- Chinese and English languages;
- Integrated handheld unit, Controller troubleshooting and tuning function;
- Support password and NFC authentication, meet the requirements of TSG81 regulations;
- Optional remote communication function.



Applied to: Off-road traffic vehicles, such as industrial vehicles, aerial work platforms, environmental sanitation and cleaning equipment, etc.

TS-MS Intelligent display

- Voltage: 24V / 48V;
- 128x64 monochrome OLED screen, self-emitting, wide view, sunlight visual;
- Chinese and English languages;
- Integrated monitoring parameters: Controller troubleshooting and tuning function;
- capacitive touch button.



Applied to: Off-road traffic vehicles, such as industrial vehicles, aerial work platforms, environmental sanitation and cleaning equipment, etc.

TS-T1 PMS motor

- Significantly improved efficiency than AC asynchronous motor;
- Small weight, compact structure, convenient installation and maintenance;
- Used for forklift pump motor and walking motor below 30kw;
- High reliability and stability with intelligent solution of THM controllers and displays.

Voltage	48/80V
Max. current	600A
Rate power	≤25kW
Rate speed	1900-3000rpm
Rate torque	38-100Nm
Protection level	Ip65



Applied to: EBC- Truck- 3-Wheel forklift storage vehicle etc.

TS-Golfcart traction motor

5kW PMS motor has small starting current, large torque and torque pulse small movement, smooth operation. Wide range of operating speed, embedded structure, reliable and stable operation, no carbon brush, all closed, maintenance-free system with energy recovery function.

Voltage	48V
Max. current	350A
Rate power	5kW
Rate torque	17.1Nm
Rate speed	2785rpm
Protection level	IP65

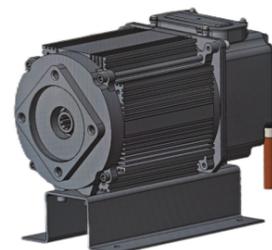


Applied to: golfcart, ATV, UTV, sightseeing bus, etc.

TS-T1-E-Y01 Solution as PMS motor and controller

TS-T1-E-Y01-24V solution as PMS motor and controller is a permanent magnet synchronous system solution integrated with motor and controller, and adopts the first-class control algorithm at home and abroad: it realizes the accurate control of the torque in the wide speed range of the motor, with high power density and torque density. The motor has small starting current, large torque, small torque ripple and stable operation. Wide range of operating speed, built-in structure, reliable and stable operation, no carbon brush, completely closed, system maintenance free, and has energy recovery function.

Voltage	24V
Max. current	350A
Rate power	3.5kW
Rate torque	12.4Nm
Rate speed	2700rpm
Protection level	IP67

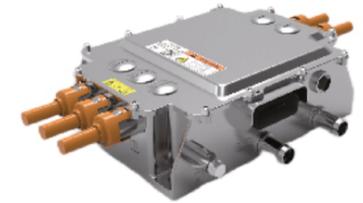


Applied to: scissor lift

TS-H30 Control system

- Protection Level: IP67;
- High power density, improve vehicle range;
- The installation position is flexible, saving the vehicle layout space.

Voltage	336V
Rate power	30kW
Max. power	65kW
Max. current	250A
Short duration of current	60S
Switching frequency	10kHz
Protection level	IP67
Cooling mode	water cooling



Applied to: EBC- Truck- 3-Wheels forklift storage vehicle, AWP, etc.

TS-VCU

- 32-bit Embedded Integrated Motor Controller, operating frequency: 120MHz;
- Rich external interfaces, including multiple digital inputs, analog inputs, and multiple PWM voltage control outputs;
- Comprehensive alarm protection functions and historical alarm recording capabilities;
- Integrated control system implemented using CAN communication.

Voltage	6-100V
Working Environment Temperature	-40°C-70°C
Storage Temperature	-40°C-85°C
Working Protection Temperature	85°C
Working Humidity	< 85%
Protection Level	IP65

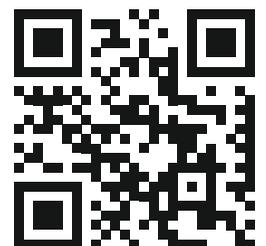


Applied to: storage vehicle, pallet truck, etc.



THM Huade Hydraulics Pvt Ltd

F-127, Phase-VIII, Focal Point,
Ludhiana-141010, Punjab (INDIA)
PH: 0161-2672777, 0161-2672778
E-mail: sales@thmhuade.com
Website: www.thmhuade.com



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