

Telematics

EP,s next generation solution for fleet management 2.0

EP Equipment on ine Training



AGENDA

01 EP Equipment

02 EP Telematics

03 user Benefits

04 Focus on Li-ion forklift trucks



EP EQUIPMENT COMPANY OVERVIEW





100.000 Units in 2019



International Key Account focus



Market leader for electric pallet trucks





Li-Ion market leader

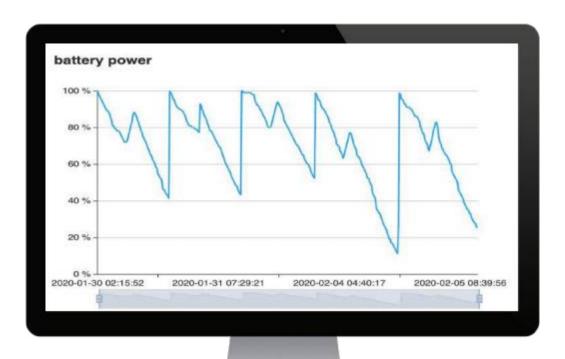


We believe in products that simply work

- Own design
- Focus on li-ion
- Simple after sales
- Change the market
- The EP Telematics proves again this overall concept and thinking

Lithium ion truck sales





Telematics real time monitoring:

- . Telematics equipment fitted under the battery cover
- . Fast charging
- . opportunity charging
- . Ideally keep the battery between 35% and 65% (or 25% and 85%)





EP Telematics





what is it?

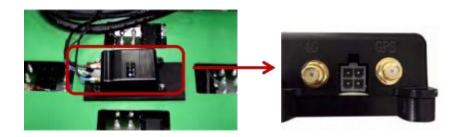
who uses it?

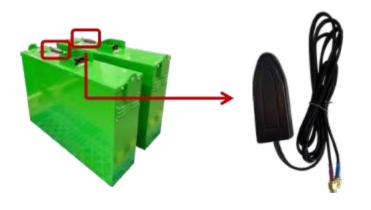
what do I do with it?

what does it do for me?

EP Telematics







HoW does the sYstem technically Work?

- Li-ion batteries & BMS
- Forklifts with Zapi controller (for now)
- CAN + power supply
- GPS
- 4G
- Website
- PC, Tablet, Mobile
- APP



Benefits





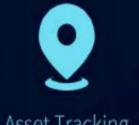
what value does telematics bring me?

- Fleet management
- Li-ion battery and truck analytics
- Proactive after-sales service

Lift your business to a neW level With more profit For end user AND for the dealer

Features













Asset Tracking **Uptime Boosting**

Battery Monitoring

Predictive Maintenance Remote Start Stop

Asset tracking

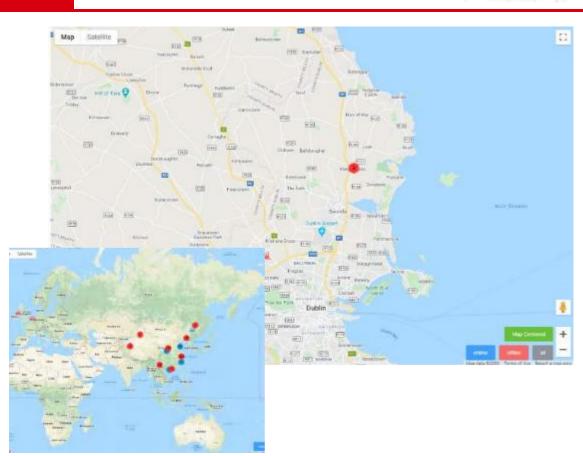




Asset tracking

- online
- Base station

Customers can get an own login to see their own trucks Same online platform



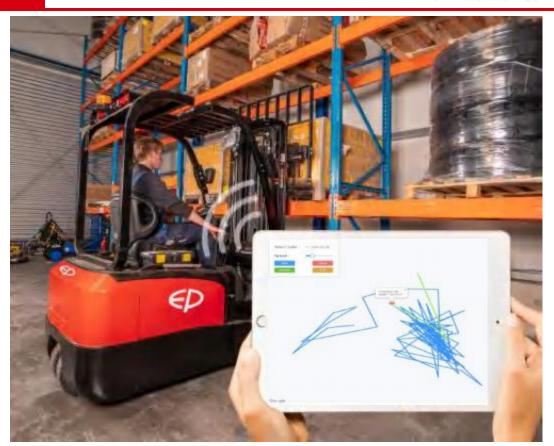
Asset tracking





Asset tracking

- Real time GPS tracking
- Track play back



Asset tracking





Asset tracking

operation zoning



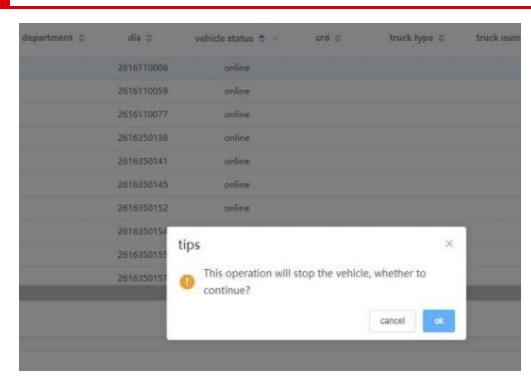
Remote start-stop





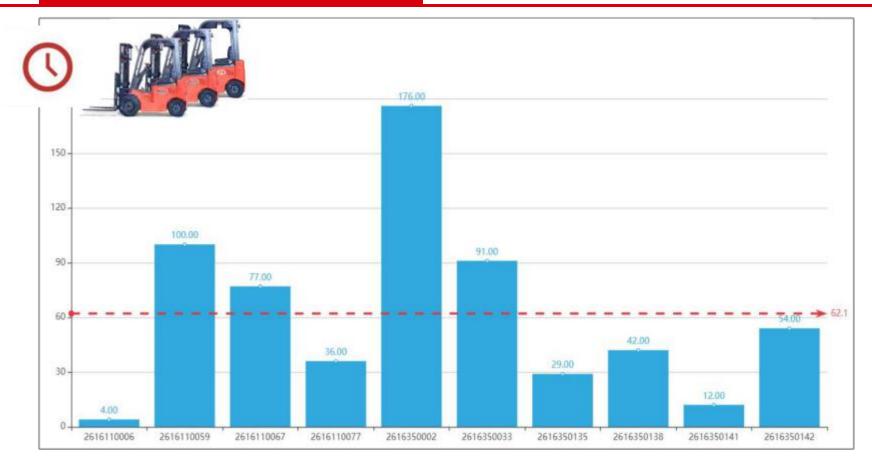
Remote start - stop

- zoning
- Days rental
- Hours rental
- Reminder, automatic expiration or manual start-stop



Fleet management





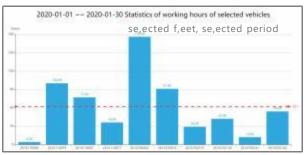
Fleet management

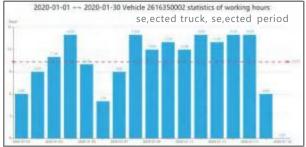




uptime boosting

- . F,eet ana,ysis & truck ana,ysis
- . Accumu, ated operation data over desired time
- . statistica, ana, ysis of working hours
- . statistica, an ana, ysis of vehic, e operation time
- . A,,ocate the f,eet to the right ,ocation
- . Data can be ,oca,,y exported to exce, for further ana,ysis







Truck management







uptime boosting

- . Individual truck use
- . Real time, online available
- statistical analysis of working hours over time

clark green means that the vehicle is online for more than half an hour, light green means that the vehicle is online for less than half an hour. If the ve

JE15-10-10

Many trucks are not used as intensively as we think

Driver management





card Reader

- optional
- Driver identification
- Driver + truck analysis



Ordinary card = 1 card, 1 truck, 1 truck can connect to unlimited amount of cards, cards cannot be re-programmed Master card = 1 card, all trucks

Management card = Activate or deactivate the system, activate an ordinary card on the truck Cards cannot be re-programmed

Card number is added online, then driver data can be filled out by the fleet manager online.

Note: For countries with data restrictions, the card number and driver data should be locally stored at the employer so in the cloud we then have no driver ID information, only general non personalised data.

Driver management

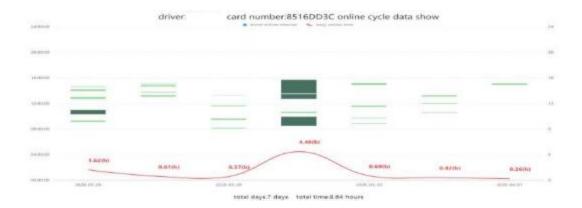






Driver Management

usage data



| company 0 | name ÷ | sex ÷ | employee number @ | card number \$ | dis 0 | driver status 🗧 = | phone number © |
|-----------|-----------|-------|-------------------|----------------|----------------|-------------------|----------------|
| | OPERATOR1 | maie | 0 | 1C12DD3C | 67698041006548 | offine | |
| | | male | 0 | 6814DD9C | 65501042170366 | offline | |
| | | male | 987654321 | 8516003C | 1917154001 | offine | 56 |
| | | male | 0 | BBF6DC3C | 2617322010 | offline | |
| | | maie | 0 | DICECOIC | 2710250147 | offine | |
| | OPERATOR2 | male | 0 | D774003C | 67598041006548 | offine | |
| | | | | | | | |

Driver management

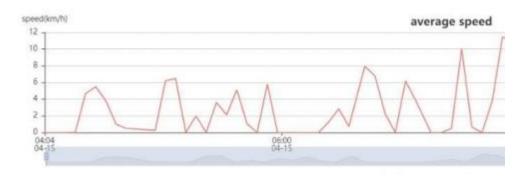






perormance data

- . Tota+ visibi+ity into technica+ truck data
- . current and omnidirectiona+ data
- . speed + Lifting



Battery management







uptime boosting

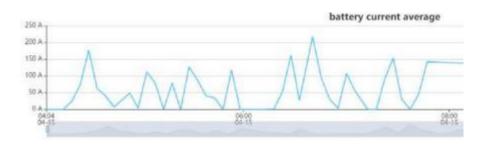
- voltage
- Soc charge and discharging current

Here we do something unique

With li-ion we change the way we look at batteries Change the way we look at battery size Change the way to look at when to charge, where to charge

Change in the optimum truck and battery configuration

Change in the design the optimum fleet Even different design of the warehouse



battery:65860042004029 working status data show



Battery management





uptime boosting

- Find out the truck behavior during the day
- . when can be charged
- optimise battery capacity,sma,,er size can do
- . optimise use of, i-ion battery
- . Longest battery ,ife time

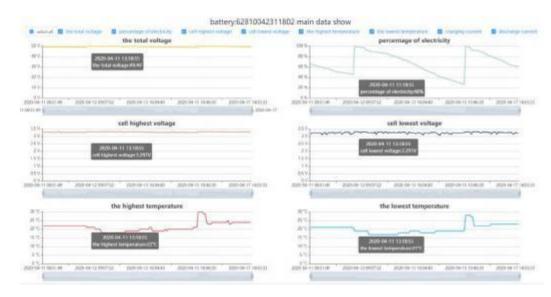






Remote battery diagnose

- . state of charge and discharge
- . voltage
- . Temperature





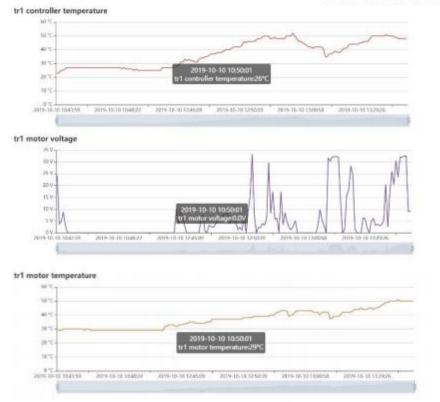




Remote truck diagnose

- . Tuck data: we have all the truck data from the controller
- . Temperature data of motors, controller and battery



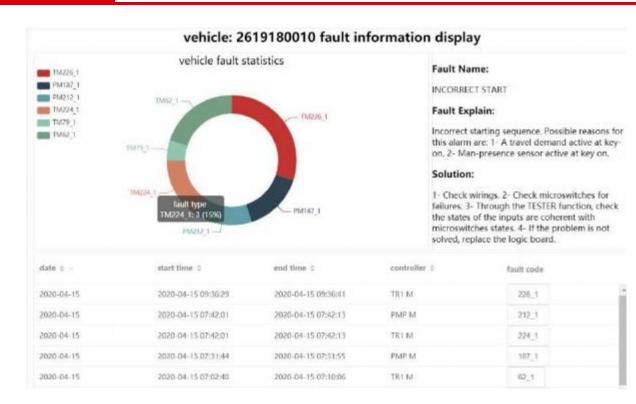




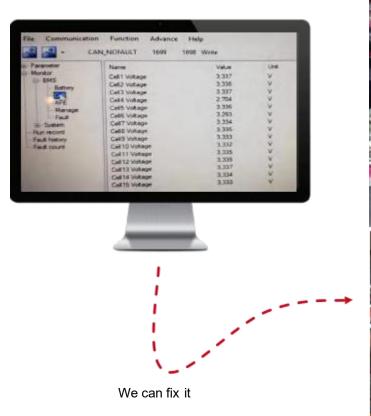


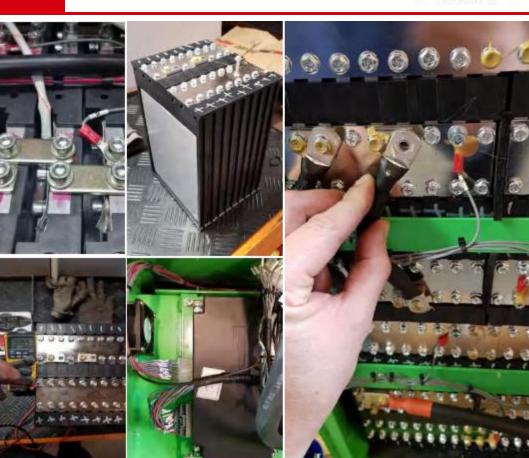
Remote diagnose

- . Error code
- . Explanation
- . solution









05

Focus on li-ion fork lift trucks



Focus



- Our system is now focussed on our max range li-ion trucks
- Use the system to optimise the use and boost the sale of li-ion batteries
- If you have wishes to the EP system, feel free to provide input
- If you have wihes beyond the sope of the EP system, benefit from the great 3rd party systems on the market

3rd Party Fleet Management System



GemOne Telematics

Fleet and safety management solutions that help material handling fleets make their warehouses safer and more efficient.

- **Machine Monitoring:** Track machine usage and ensure safe operation with impact alerts and automatic lockout.
- **Safety Features:** Driver behavior analysis, access control, overload detection, license management, and on-screen safety checklists.
- Activity Reporting: Utilization reporting shows machine usage, while session reporting monitors individual operators and daily activity.
- **Efficiency Insights:** Analyze key time, seat time, and movement hours to identify and remove efficiency roadblocks.
- **Single Platform:** Access all warehouse data in real-time via a cloud platform, available on any web-enabled device.

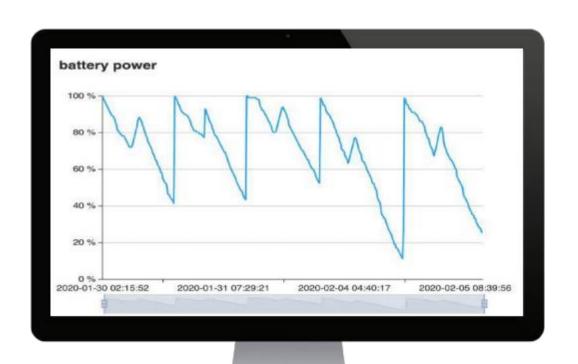


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EP Li-ion fork lift trucks









EP Li-ion fork lift trucks





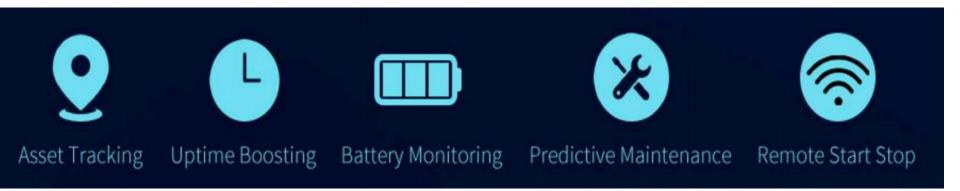


- Order your demo and stock trucks now with the Telematics system
- Use the battery analysis to show the customers the benefits of li-ion
- Increase awareness and interest for the EP Equipment thinking

For more information see our sales training sessions on li-ion technology and on the individual trucks. PDF available on request. For after sales support we offer tools and training.

Investment





System: Eur 599

RFID Reader: Eur 170



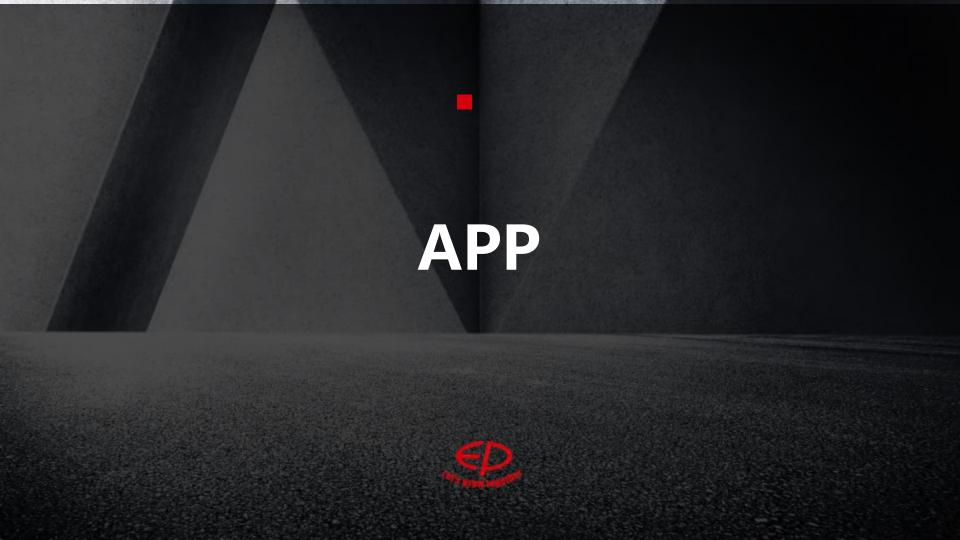


End user price. For stock trucks same price For Europe now including 5 years 4G data and online access



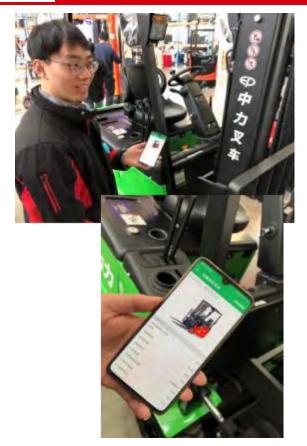
Q&A





APP

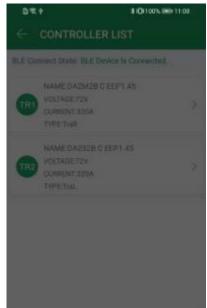




- Replace Zapi handheld or PC Cable
- First test units in Europe from 07.2020

APP





| Please Select What You Want To Do With th |
|---|
| 1. Parameter Tool |
| 2. Tester |
| 3. Program VACC |
| 4. Present Fault |

| D#+ | # O 100% (SO 11:13 |
|-------------------------------|--------------------|
| ← PARAMETER T | OOL |
| BLE Connect State: BLE Device | ce is Connected. |
| Parameter Change | 1 NEXT |
| ACCELER DELAY | LEVELVI |
| RELEASE BRAKING | LEVEL=5 |
| INVERS. BRAKING | LEVEL=7 |
| PEDAL BRAKING | LEVEL=2 |
| SPEED LIMIT BRK. | LEVEL=1 |
| BRAKE CUTBACK | LEVEL= |
| Set Option | 1 NEXT |
| KDS/SHAB.MOTOR | OPTION#2 |
| HOUR COUNTER | RUNNING |
| BATTERY CHECK | OR |
| TRACTION CUTOUT | OFF |
| LIFT CUTOUT | ON |
| HYDRO KEY ON | OFF |
| Set Model | |
| CONNECTED TO | 1 |
| Adjustment | 1 NEXT |
| SET POT BRK MIN | 0.99 |
| SET POT BRK MAX | 9.09 |
| SET BATTERY TYPE | 729 |

← PRESENT FAULT

BLE Connect State: BLE Device is Connected.

Fault Name: VMN HIGH

Fault Reason:

Before switching the LC on, the software checks the power bridge: it turns on alternatively the low-side power MOSFETs and expects the phase voltages decrease down to -B. If the phase voltages are higher than a certain percentage of the nominal battery voltage, this alarm occurs.

This alarm may also occur when the start-up diagnosis has succeeded and so the LC has been closed. In this condition, the phase voltages are expected to be lower than half the battery voltage. If one of them is higher than that value, this alarm occurs.

How To Do:

- A) If the problem occurs at start-up (the LC does not close), check:
- motor internal connections (ohmic continuity):
- motor power cables connections;
- if the motor connections are OK, the problem is inside the controller. Replace it.
- B) If the alarm occurs while the motor is running, check:
- motor connections;
- that the LC power contact closes properly, with a good contact;
- if no problem is found, the problem is inside the controller. Replace it.

Next Training

Topic:

JX Series
The New Generation order picker

Friday 1st May 2020

10AM Central European Time

