



MONZONE®

NEW

Power Management Thermolite™ 24V Solar Systems

Launch Webinar - 18th October 2018



INTRODUCTION

- Power Management solution to charge 24V power systems on tractor and tail lift vs. 12V architecture on refrigeration units:
 - ✓ Enable greater driver comfort in cabin
 - ✓ Extend 24V battery life
 - ✓ Reduce maintenance costs for 24V batteries
 - ✓ Reduce tractor engine run-time (idling to charge battery) & fuel consumption



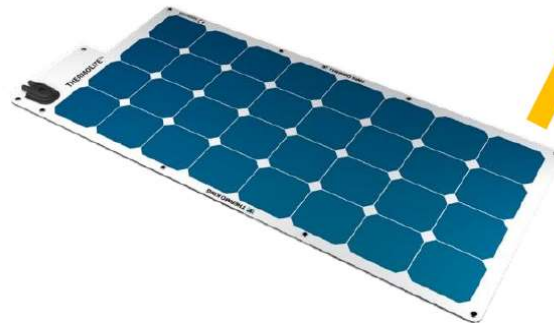
Extended battery life, avoid call out costs, achieve fuel savings

CUSTOMER NEED

- 24V battery replacements and breakdowns; VOC = 75% Customers)
 - Customer example of breakdown cost (can vary by country)
 - 2 batteries per callout: € 800
 - Labour/Service: € 300
 - Travel to garage: € 200
 - Downtime: € 300
 - **Total: €1,600**
- Driver comfort: Driver doesn't have to worry about using electric loads on board
- Fuel & Engine: Reduce engine idling time due to battery charging & reduce wear and tear on engine and other parts

Current Alternative Solutions

- Preventive change of batteries
- Battery disconnect – disable features
- Leisure batteries – auxiliary battery
- External charging stations



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KEY FEATURES AND SPECIFICATIONS

- ✓ Highly efficient Solar PV cells → extend battery life and prevent costly road calls for flat batteries
- ✓ Fuel saving gain through less engine idling to charge battery
- ✓ Easy & fast installation (<2 hours)
- ✓ Designed and validated for transport applications
 - ✓ Weatherproof construction
 - ✓ Resistance to trailers chemical wash cleaning process
 - ✓ Automotive tested and approved
- ✓ Low profile design for height restrictions
- ✓ Modular monocrystalline structure flexible design panel (30 degrees)

Spec.	110W	40W	Comments
Maximum Power (W)	110	40	Power Max (correctly sized for loads & modular flexibility)
Maximum Voltage (V)	17.6	19.04	Voltage max power (V)
Maximum Current(A)	6.25	2.1	Max power in low light conditions (Amp)
Efficiency	22%	22%	Competitors = 10-12%
Installation	~2 hours	~2 hours	One kit
Warranty	2 years	2 years	Competitors part only warranty coverage
Dimension (mm)	1149x560x17.5	725x330x17.5	Low profile to avoid damage
Weight	~ 2.5kg	~ 1kg	Ultra Light weight

CHARGE CONTROLLER - REGULATOR

AUTOMOTIVE APPROVED 24V CHARGE CONTROLLER

- ✓ Colour coded LED indicators for charging status and trouble shooting
- ✓ Capable of up to 220W of power input
- ✓ Solar MMPT (Maximum Power Point Tracking) design for charging efficiency
- ✓ Actively measures battery state of charge = Over and under charging protection
- ✓ IP68 design for harsh environment (dust tight and water immersion >1m)
 - Alternative solutions will not endure in our harsh environment
 - Risk of overheating and thermal battery damage.

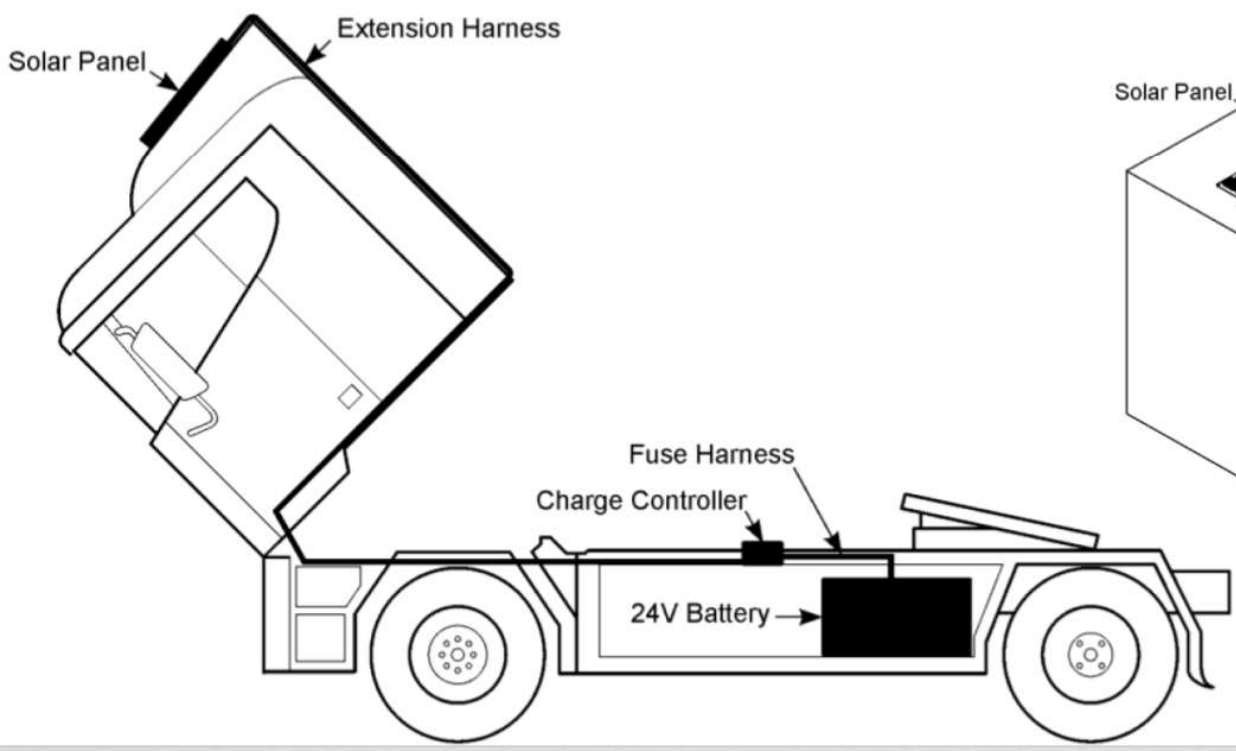


LED Symbols

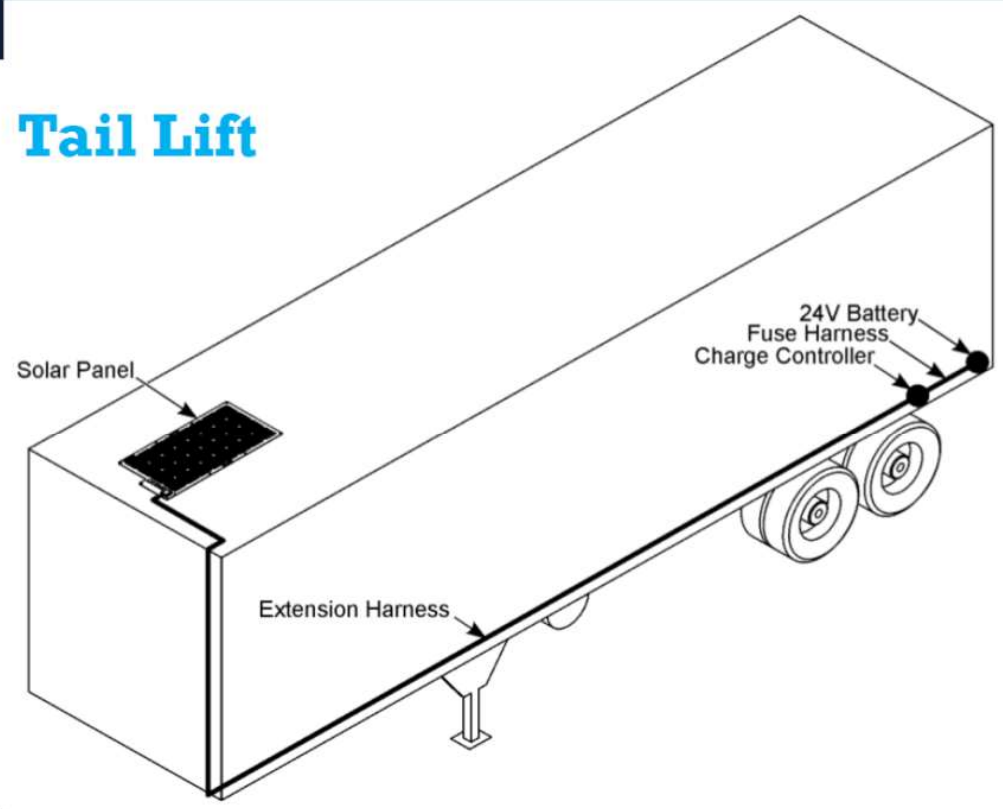
	Green LED	Yellow LED	Red LED
ON	Connected to battery, "Night" detected (No charging)	24 V > Battery voltage > 23 V	Yellow LED OFF= Battery voltage < 22 V Yellow LED Flash = Battery voltage > 31 V
Flashing	Connected to battery, "Day" detected (Charging)	23 V > Battery voltage > 22 V	Not applicable
OFF	No battery connected	24 V Battery: > 24 V	Battery voltage in normal operating area. No alarms present

INSTALLATION

Tractor



Tail Lift



SPACE REQUIREMENT

DIMENSIONS DETERMINE WHAT CONFIGURATION TO USE



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CUSTOMER PROFILE COMPARISON 12V & 24V

Customer 1: Located in Central/Southern Europe

I have a reefer unit but a lot of battery breakdowns and I want to save fuel.

Customer 2: Located in Northern Europe/Scandinavia

I have a reefer unit but a lot of battery breakdowns and I want to save fuel.

Customer 3:

I have a long haul business. I have a TLC installed and frequently use the tail lift.

Customer 4:

We work in the distribution business and have to use the tail lift very often.

Customer 5:

We have a lot of battery breakdowns on our tractors and lose uptime.

**Recommended solution:
40W 12V System**

- Fuel savings up to 140 litres/year
- Extend unit's battery life

**Recommended solution:
110W 12V System**

- Fuel savings up to 212 litres / year
- Extend unit's battery life

**Recommended solution:
40W 24V System**

- Operate tail lift when needed
- Battery life extension

**Recommended solution:
>80W 24V System**

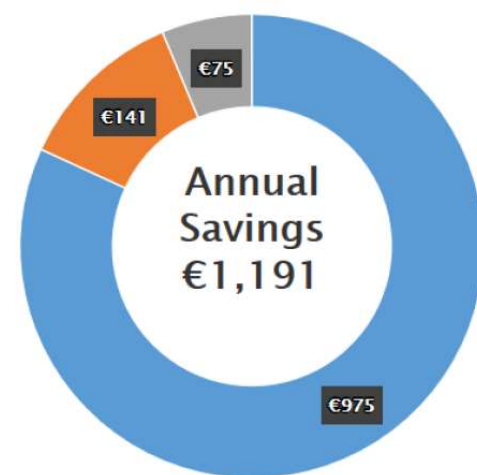
- Max. configuration: 220W
- Operate tail lift when needed
- Battery life extension

**Recommended solution:
>80W 24V System**

- Preferable solution: 110W for more power
- Extended battery life
- Save on call out costs

COMMERCIAL DETAILS

Part #	Part Description
401438	KIT SOLAR THERMOLITE, 40W 24V EMEA
401444	KIT SOLAR THERMOLITE, 40W EXTENSION EMEA
401439	KIT SOLAR THERMOLITE, 110W 24V EMEA
401440	KIT SOLAR THERMOLITE, 110W EXTENSION EMEA



- Fuel Saving
- Flat Battery Saving
- Battery Replacement Saving