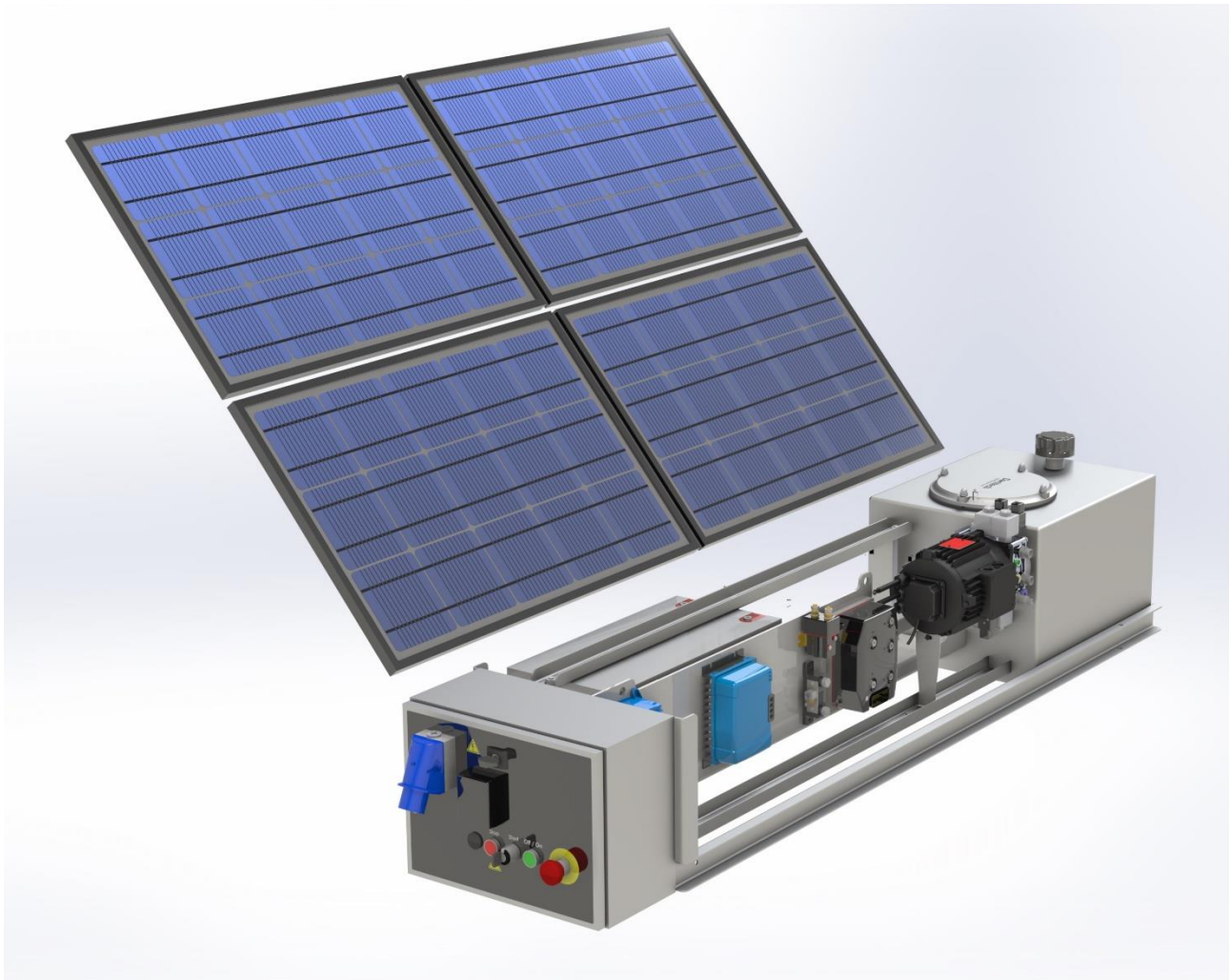




## Solar-Powered Hydraulic Power Unit for mobile compactor



### Highlights

The solar-powered hydraulic power unit is an energy-efficient solution for waste compactors.

It's as standard equipped with one lithium Iron Phosphate (LifePo4) battery and a 24 v highly efficient permanent magnet motor for sustainable and economical operation.

The compactor will work with less speed than a normal compactor, but it has the same force as the normal compactors and the filling will be the same. The press capacity is 100 cycles daily, and it is charged via 4 pc 300-watt solar panels mounted on the top of the compactor.

On days where the sun doesn't give power enough it can be charged by connecting it to a normal standard 230-volt connector and an internal charger will charge the battery.

A lot of mobile compactors are not used so intensively, and these machines can easily use our system here described, and it makes this perfect for many festivals, outdoor events such as marketplaces or if you just want to save on your electricity bill.

It can be configured with extra functions such as tipping, vertical press plate, lid opening/closing, IoT platform, etc.

Capacity: Approx. 100 press cycles on a charge.

24 v permanent magnet motor controlled by separate electronic motor controller.

Recharges via the 4 solar panels or a standard 230 V electrical charger. Automatic shift between solar or charger.

Regenerative function for faster cylinder extension speed and power usage.

Manifold design allows for extra functions and configurations.

Soft-shift function for reduced hydraulic shocks, pressure peaks and noise level.

4G/5G modem including gps.

As option - configurable IoT platform to locate machine, track performance and schedule service

Easy configurable CPU-based controller with safety level (PL-d).

Manufactured to ISO 9001:2015 and ISO 14001:2015 standards.

Hydraulic function tested and executed with oil cleaned down to 3 microns.

The software is based on 35 years of experience in hydraulic and electronic controls of machines, means plenty of possible settings to optimize your machine to the waste it must handle. That gives you more and better fillings into your compactor.

Optional with proportional inlet module. Valves available for tipping, locking and guillotine or other function.

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## Tech specs main components

### Electric motor

Special designed 2,75 kW, 24V highly efficient permanent magnet motor with integrated encoder.

### Pump

Low noise fixed gear pump - Max. flow: 16 l/min, Max. pressure: 210 bar

The flow is controlled by a separate motor controller that can work with very low speed and up to 4000 rpm.

### Manifold / Valves

DT hydraulic unit with high flow manifold with regenerative function, dump function and pressure sensor.

Prepared for extra functions.

### Oil tank

60 l oil tank in steel, powder coated inside and outside. Easy to clean through an aluminum maintenance cover on top of the oil tank. Combined 10 micron return oil filter and 3-micron anti splash breather

### Sensors

Oil pressure with integrated temperature sensors.

### Electrical control system/box

CPU-based parameter-safety controlled with service tool, 4/5G modem with GPS and GSM and antenna with integrated backup battery. Battery charger, motor controller and solar panel, a start and stop push button - an emergency safety push button and a main key switch.

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### **Battery pack**

1 pc lithium Iron Phosphate (LifePo4) battery 24V - 100Ah - Size: 486 x 170 x 240 mm ip55 – 2,56 kwh – peak 260 amp in max 5 seconds - weight: 20 kg

The battery has an intelligent battery management system (BMS) so that the battery data can be send up in any IOT platform that can handle the data through CAN open.

The battery should be protected against temperatures below 5 degrees Celsius.

### **Connection**

Electrical: 230V DC

### **Size and Weight**

H: 40 cm, W: 44 cm, D: 200 cm - 175 kg. In bigger quantity we design them to your specification.

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### **SmartSolar Charge Controller Type 150/45**

Ultrafast Maximum Power Point Tracking (MPPT)

Especially in case of a clouded sky, when light intensity is changing continuously, an ultra-fast MPPT controller will improve energy harvest by up to 30% compared to PWM charge controllers and by up to 10% compared to slower MPPT controllers.

Advanced Maximum Power Point Detection in case of partial shading conditions If partial shading occurs, two or more maximum power points may be present on the power-voltage curve.

The innovative algorithm will always maximize energy harvest by locking to the optimum MPP.

Outstanding conversion efficiency - No cooling fan. Maximum efficiency exceeds 98%. Full output current up to 40°C.

Extensive electronic protection

- Over-temperature protection and power derating when temperature is high.
- PV short circuit and PV reverse polarity protection.
- PV reverse current protection.

Fully discharged battery recovery function – It will initiate charging even if the battery has been discharged to zero volts.

Battery voltage 12 / 24 / 48V Auto Select - Rated charge current 35A 45A - Nominal PV power 45A- 24V: 1300W

Maximum efficiency 98%

Self-consumption 24V: 15mA

Operating temperature -30 to +60°C (full rated output up to 40°C)

Humidity 95%, non-condensing - Color Blue (RAL 5012)

Power terminals 16 mm<sup>2</sup> / AWG6 - Protection category IP43 (electronic components), IP22 (connection area)

Dimensions 130 x 186 x 70 mm - Safety EN/IEC 62109-1, UL 1741, CSA C22.2

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### **Smart IP67 Charger 24/12**

Completely encapsulated: waterproof, shockproof and ignition protected

Water, oil, or dirt will not damage the Smart IP67 Charger. The casing is made of cast aluminum and the electronics are molded in resin. 92% efficiency or better.

And once the battery is fully charged, power consumption reduces to less than a Watt.

The Smart Charger features a microprocessor controlled 'adaptive' battery management. The 'adaptive' feature will automatically optimize the charging process relative to the way the battery is being used.

Protected against overheating

Can be used in a hot environment such as a machine room. Output current will reduce as temperature increases up to 60°C, but the charger will not fail.

Two LEDs for status indication - Yellow LED: bulk charge (blinking fast), absorption (blinking slow), float (solid), storage (off) Green LED: power on.

Input voltage range and frequency 180-265 VAC 45-65 Hz - Efficiency 96% - No load power consumption 0.5W

Charge voltage 'absorption' Normal: 28,8V High: 29,4V Li-ion: 28,4V

Charge voltage 'float' Normal: Normal: 27,6V High: 27,6V Li-ion: 27,0V

Charge voltage 'storage': Normal: 26,4V High: 26,4V Li-ion: 27,0V

Charge current, normal mode 12A - Charge current, LOW 4A - Can be used as power supply.

Protection Battery reverse polarity (fuse) Output short circuit Over temperature.

Operating temp. range -20 to +60°C (full rated output up to 40°C) Derate 3% per °C above 40°C - Humidity Up to 100%

Short circuit proof, current limit 0,5 A - Output voltage: max one volt lower than main output.

Material & Color aluminum (blue RAL 5012) - Battery-connection Black and red cable of 1,5 meters.

230 V AC-connection Cable of 1,5 meter with CEE 7/7 plug - Protection category IP67

Dimensions mm 99 x 219 x 65

Safety EN 60335-1, EN 60335-2-29 - Emission EN 55014-1, EN 61000-6-3, EN 61000-3-2 - Automotive Directive EN 55014-2, EN 61000-6-1, EN 61000-6-2, EN 61000-3-3

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## **Motor controller ACF-2A**

The Motor Controller provides accurate speed and torque control to the motor that runs the hydraulic pump.

Comprehensive library of motor types stored in controller memory.

### **Fit for Purpose**

Rugged housing with a small footprint for the power rating.

Heavy duty M6 busbars for motor and battery connectors - Sealed, 23-pin AMP seal I/O connector. IP65 environmental protection as per IEC 60529.

Smooth and predictable drive control.

### **Diagnostics**

Status LED for at-a-glance system troubleshooting.

Thermal cutback, warning and automatic shutdown protect the motor and controller.

Error logging, fault history and CAN Emergency Messages.

### **Customize Your Vehicle with VCL**

The Vehicle Control Language (VCL) enables the motor Controller to operate as system controller, eliminating the need for costly additional controllers

### **Get More Out of Your Battery— Regardless of the Technology**

High efficiency means more of your battery's energy is converted to motor output power.

Configurable overvoltage and undervoltage protection parameters.

Wide operating voltage range allows use with cell chemistries such as lithium ion.

Configurable Can bus and VCL allow easy integration with the Battery Management Systems (BMS).

### **CAN-based Programming**

Programmable over the Can bus. Supports most CAN-based service tools.

Develop, configure, optimize, and debug vehicle systems with the Integrated Toolkit

### **Comprehensive CAN Capabilities**

Configurable 11- or 29-bit protocol support for CAN open or J1939 use.

Plug and play support for CAN displays and CAN tiller heads from leading manufacturers.

Fully CAN open compliant.

## Solar panels

4 pcs 300-watt panels in aluminum frame – each have dimension 1640 x 990 x 40 mm.

Monocrystalline -72 cells each - open circuit voltage: 42.48v - Max power voltage: 36v

Short circuit current: 8.4A - Max power current: 7.63A - Weight each: 21kg

Cable – connectors can be delivered on demand.

There are no brackets included as each manufacture has different ways to mount the solar panels on the machine.

It can be a good idea to mount the solar panels on small shock absorbers.

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## Options

IoT platform available as option for manufactures.

OEM-branding as option for manufactures.

Proportional inlet module. Valves available for tipping, locking and guillotine.

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## Even so a solution:

This unit can even so be made without the solar panels and the solar inverter, means you have a compactor you just connect to 230 volts, and it will charge the batteries. Then you can use the compactor on marketplaces or where you want about 100 cycles per day.

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## How to Buy

Configure your solution with our application specialists and get a quote

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