Battery Box in a compact design
Protection Classification IP 54 to DIN EN 60529 (VDE 0470)

Smart LED energy Indicator

State-of-Charge Indicator

ON | L M H F

Li-Ion

Connectors: with **AccuPower** connector housing
Main line: cable with PP-connector + Red and - Black
http://www.accupower.at/products_connector.php

Optionally available with Interface connector:
4 pin redel plastic circular push-pull latching connector.

Lithium-Battery Pack with protection electronics
(PCM single cells monitoring), protects the battery against overcharge,
deep discharge and short circuit,
Implemented cell balancing, with interface for service purposes (number
of cycles, capacity, temperature, etc.) and **Smart LED energy Indicator**.

Pack Specifications	
Nominal Voltage	12.8 V
Capacity (Nominal)	16000 mAh
Energy	204.8 Wh
Weight	1800 grams ±50g.
Size (L x W x H) mm	167 x 100 x 78.5 ±1

Operating Specifications	
Operating Voltage	14.4 V to 11.6 V
Charge Voltage	(Max. 14.40 V) ± 0.1 V
Discharge End Volt.	11.4V ± 0.2 V
Operating Temperature: Discharge Charge	Battery Temp. -20°C to 60°C @8A -10°C to 50°C @4A
Max Discharge Current Peak 35A @ 100 ms.	continuous 16A @ (0°C~50°C) 8A @ (-20°C~ 60°C)
Max Charge Current Peak 16A @ 10 ms.	8A @ (0°C ~ 45°C) 4A @ (-10°C ~ 50°C)

Storage Specifications	
Storage Temperature Rh: (0% ~ 75%) SoC: *State-of-Charge* ≥ 70%	1 year : -20~25°C(1*) 3 months : -20~45°C(1*) 1 month : -20~60°C(1*)

Applications
Automotive
Testing equipment
Industrial
Medical
Sport , and others

State-of-Charge LED-Indicator

F : Full	L : Low
H : High	⚡ : Battery nearly empty
M : Medium	⚡ : Charge the battery

Note (1): If the cell is kept as ex-factory status (≤ 30% of charge), the capacity recovery rate is more than 80%.

Standard charging method
0.5C CC （constant current） charge to 14.40V, then CV (constant voltage 14.40V max.) charge till charge
current decline to ≤ 0.02C

Transportation:
Transport according to the current regulations: ADR / RID / ADN / IATA / IMDG
Battery over 100Wh / Class: 9 / UN-Number: UN3480
Shipping name: Lithium ion batteries
Environmental hazards / Marine pollutant: No

Care and safety recommendations:
Never open, short circuit or put in fire. Do not install backwards. Avoid short circuit with metal objects.

Overcharge / Overdischarge / Overcurrent Safety Circuits:
The controller IC measures the voltage for each cell (or for each parallel battery block) and shuts off a control
switch to either prevent overcharging (if the voltage exceeds the specified voltage range) or to prevent over
discharging (if the voltage falls below the specified voltage range). Moreover, the voltage of the control switch is
measured on both ends and in order to prevent overcurrent, control switches are shut off if the voltage exceeds
specifications.

The Overcurrent Safety Function
The discharge is stopped when the output terminals are shorted. The discharge restarts when the short is
removed.

Attention: Please fully charge the batteries before using!!!

• The Functions of the Safety Circuits (typical functions)
The voltages listed below are typical values and are not guaranteed. The charge voltage varies according to model number.

1. The Overcharge Safety Function
The charge stops when the voltage per cell rises above 3.75 ± 0.05 V.
The charge restarts when the voltage per cell falls below 3.50 ± 0.1 V.

2. The Overdischarge Safety Function
The discharge stops when the voltage per cell falls below 2.20 ± 0.05 V.
The discharge restarts when the voltage per cell rises above 2.7 ± 0.1V.

3. The Overcurrent Safety Function
The discharge is stopped when the output terminals are shorted. The discharge restarts when the short is removed.

ATTENTION:
Please pay attention to following recommendations:
1. **Recharge batteries immediately after receipt**!, the batteries are delivered with low capacity
   (< 30%) according to IATA DG Regulations!
2. Charge the batteries to the recommended value before storing them for a long time: State Of Charge between 50% ~ 70% depending on the storage time, store the battery in a dry place, temperature (0° ~ +25°C), relative humidity should be less than 75% Rh.
3. Please fully charge the batteries before using! Use only the battery charger specified for this battery type.
4. Do not leave battery in charger over 24 hours.
5. Always avoid deep discharge of the battery.
6. Avoid exposure to high temperatures.
7. Do not disassemble or modify the battery, may cause the battery to generate heat, explode or ignite.
8. Dispose properly used batteries. Dispose it according to the applicable recycling regulations. Contact your city recycling coordinator. Thank you!

⚠️ **ATTENTION! Recharge batteries immediately after receipt:** ⚠️

Due to the new IATA Dangerous Goods Regulations since April 2016, the state of charge condition for air transport must not exceed 30% of the nominal capacity!
If you receive a battery pack with airfreight with 30% charge and it will be sent by air again after storage, the state of charge 30% must be checked every 2 months and recharged according to 30%.

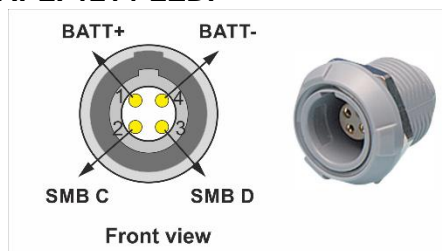**Optionally available with Interface connector: APLF1214-LEDi**

Interface connector Pinout:
PIN number 1: P+ Wire
PIN number 2: SM Clock (SMC)
PIN number 3: SM Data (SMD)
PIN number 4: P- Wire

BATT+   BATT-

SMB C   SMB D

Front view

Receptacle, Cable assembly:

Attention, Bat- and Bat+ must not be loaded with a higher current than 100mA (Danger of short circuit)
Achtung, Bat- und Bat+ darf nicht mit mehr als 100 mA belastet werden (Kurzschlussgefahr)

I²C Bus
The data is provided in little endian format. / *Die Daten liegen im Little Endian Format vor.*

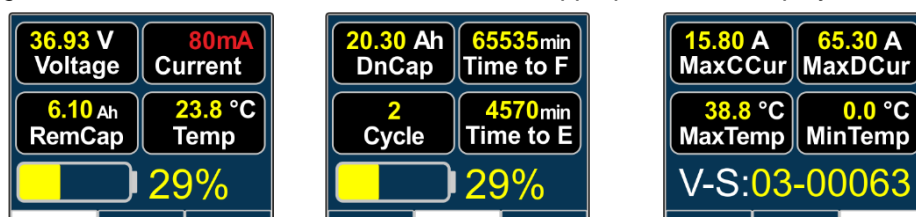Following information's can be accessed via the I²C Bus.

Device Address: 0xAA

Funktion / Function	Register	Einheit / Unit
Aktueller Ladezustand / State of charge	0x02	%
Verbleibende Kapazität / Remaining capacity	0x04 / 0x05	1 mAh
Vollständige Kapazität / Full charge capacity	0x06 / 0x07	1 mAh
Aktuelle Akkuspannung / Accupack voltage	0x08 / 0x09	1 mV
Durchschnittlicher Strom / Average current	0x0A / 0x0B	1 mA
Aktueller Strom / Actual current	0x10 / 0x11	1 mA
Akkupack Temperatur / Accupack temperature	0x0C / 0x0D	0.1°K
µC Temperatur / Internal temperature	0x2A / 0x2B	0.1°K
Voraussichtliche Zeit bis „Akku leer" bei momentanem Strom / Average time to „ Empty" at actual current	0x18 / 0x19	Minuten
Voraussichtliche Zeit bis „Akku voll" bei momentanem Strom / Average time to „Full" at actual current	0x1A / 0x1B	Minuten
Verfügbare Energie / Available energy	0x24 / 0x25	10 mW/h
Verfügbare Leistung / Available power	0x26 / 0x27	10 mW
Zyklenanzahl / Cycle count	0x2C / 0x2D	-
Akku-Gesundheitszustand / State of health	0x2E / 0x2F	%
Zeit seit letzter Ladung, Entladung / Time passed since last charge / discharge	0x6C / 0x6D	seconds.

For PC to battery communication you will need a I²C to USB Converter (EV2400 from Texas Instruments) and as PC GUI the "Battery Management Studio" is needed. With this device all battery BMS data could be read out.

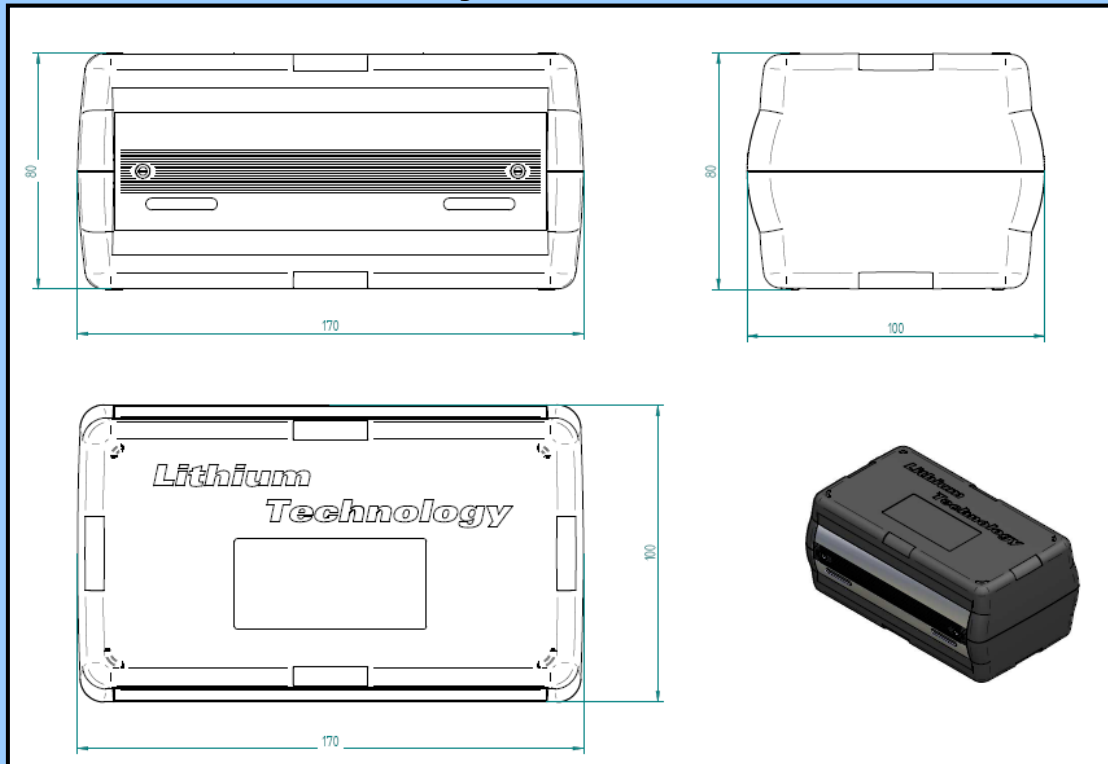### *Embedded battery management with data monitoring and displaying*

Lithium-Battery Pack with interface for service purposes provide battery information (voltage, remaining capacity, number of cycles, full charge capacity, temperature, average current, etc). This data can be displayed through the interface connection via PC or with the appropriate LCD display unit.
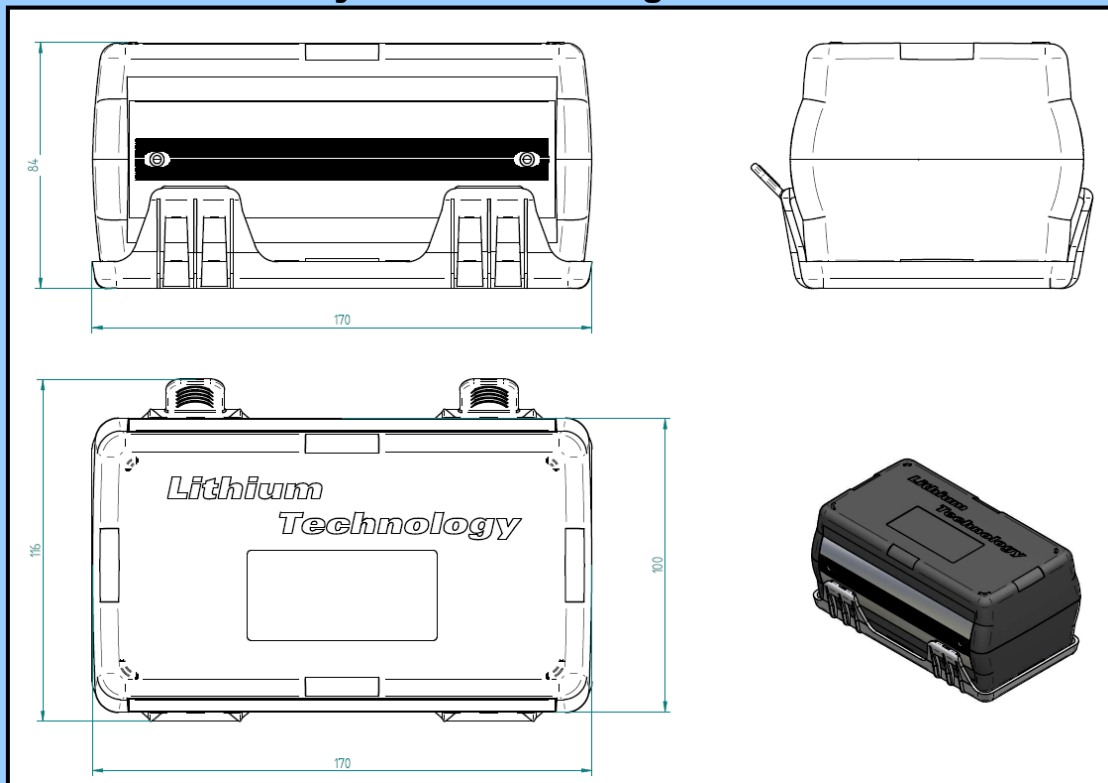
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Mechanical specifications

Battery Box Dimensions


Battery Box with Holding down device

The Battery Box is fabricated from a durable Plastic material for optimal resistance to shock, vibration and resistance to mechanical stress. robust construction, snap-fit screwless assembly

OEM / ODM service & *customized logo available*

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AccuPower *Lithium Technology Designed for Demanding Applications*

Holding down device work with snapping locking-system
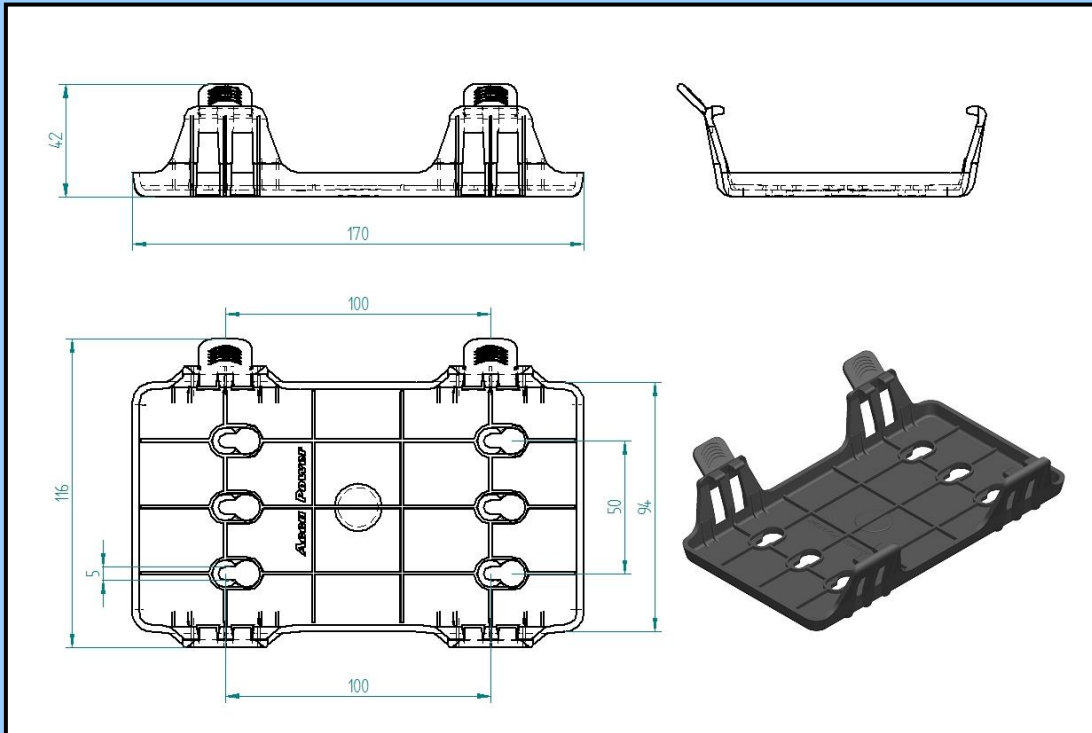
the pictures show you how to fixing the battery on holder

1

2

3

4
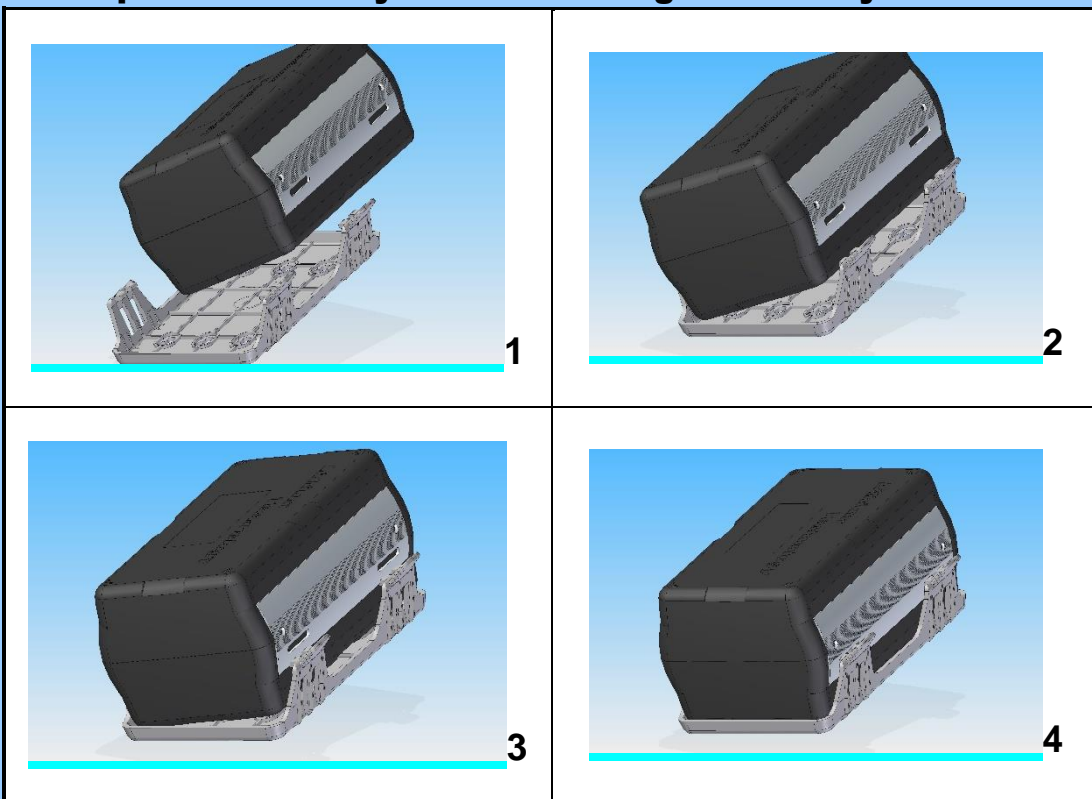
The Holder is optional and not included!!

AccuPower is offering an OEM/ODM service - where customers can customize their own design.