

1.Material sources

[Samsung 50S 21700 5000mAh 25A Battery - High Performance and Rechargeable](#)

<https://www.cellsupply.co.uk/bms?page=1&filters%5B%5D=5-12S&filters%5B%5D=5-13S&count=40>

BMS:

<https://www.dalybms.com/electric-bms-daly-k-series-standard-bms-3s-to-24s-40a-60a-100a-product/>

[DALY BMS Li-ion 10S 36V 13S 14S 48V 16S 17S 60V LFP 4S 8S 16S 24V BMS - daly](#)

2.Materials needed

1. Cells (number of will be discussed in section 3)
2. Spacer
3. BMS
4. Nickel Strips
5. XT-60 connector
6. Heat shrink (Maybe EVA foam)

3. Battery Configurations

Plan A:



Samsung 50S - 21700 Battery - 5000mAh - 35A Samsung

5000mAh - 35A Continuous Discharge

Order by 3pm (Monday to Friday) for same day dispatch!

Brand: Samsung
Model: 50S
Size: 21700
Chemistry: INR
Nominal Capacity: 5000mAh
Nominal Voltage: 3.6V
Discharge: 35A Max Continuous
Positive: Flat Top
Protected: NO
Rechargeable: Yes
Dimensions: 21.1mm x 70.4mm
Weight: 65g

Priced Individually

Cell Supply Ltd only supply authentic, batch tested cells.

Samsung SDI have recently renewed their public displeasure at the sale of their Rechargeable Lithium-Ion Battery cells (RBLIC) products to end users globally. We are bound by the Office for Product Safety and Standards in the UK to advise that Samsung SDI have not designed, manufactured, endorsed or otherwise approved these products for use by consumers.



Above cell is 5Ah and has a nominal voltage of 3.6V. A target goal between 75Wh-100Wh. The configuration is 12S/13S1P. With 12S a nominal voltage of 43.2V with a power of 216Wh is produced. With 13S a nominal voltage of 46.8V with a power of 234Wh is produced. 12S is sufficient to meet power goals set

Plan B:



Roll over image to zoom in

Molice 21700 P45B 4500mAh 45A Battery

★★★★★ (166)

Save 51%

MOLICEL



Price: **\$4.85** ~~\$9.99~~

Stock: ● In stock

Quantity:

Add to cart

Minimum Qty	Price per item
Buy 10 +	\$7.00
Buy 100 +	\$6.55

Above cell is 5Ah and has a nominal voltage of 3.6V. A target goal between 75Wh-100Wh. The configuration is 12S/13S1P. With 12S a nominal voltage of

43.2V with a power of 194.4Wh is produced. With 13S a nominal voltage of 46.8V with a power of 210.6Wh is produced. 12S is sufficient to meet power goals set.

Overall Plan A will yield greater power for a smaller volume battery.

4. BMS choice

Plan A:



Daly - 12S 48V 60A BMS

Daly

Embrace Superior Battery Management: The Daly 12S 48V 60A Lithium Ion BMS

Are you looking for a state-of-the-art Battery Management System (BMS) for your lithium-ion batteries? Look no further! Introducing the Daly 12S 48V 60A Lithium Ion BMS, meticulously engineered to provide unmatched control, safety, and performance for your Li-Ion batteries.

Key Features:

Model: NMC-12S-60A

Battery Series: 12S - 48V

Continuous Discharging Current: 60A

Peak Discharging Current: 120A (1 second)

Constant Charge Current: 30A

Peak Charge Current: 60A (1 second)

High Voltage Cut-Off: 4.25V \pm 0.05V

Low Voltage Cut-Off: 2.7V \pm 0.05V

Over Charge Protection: Yes

Over Discharge Voltage: Yes

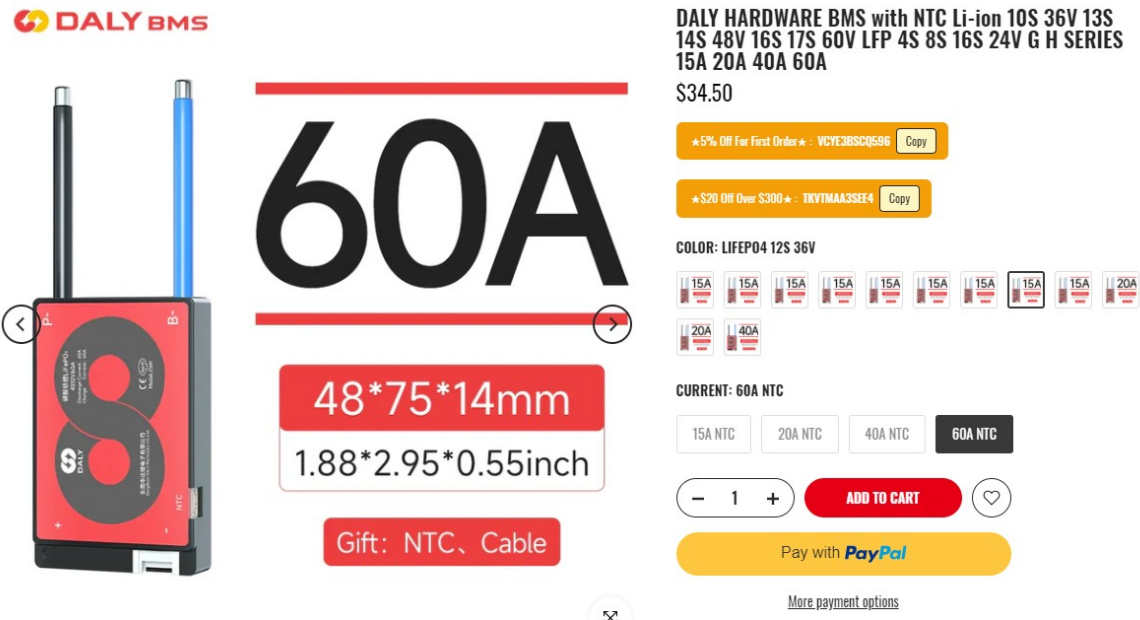
Short Circuit Protection: Yes

Heat Sink: Yes

Dimensions: 48x75x9mm

The BMS chosen was based on a 15% safeguard. Multiplying the maximum amperage of a cell by 1.15 results in a value of 54.75. Thus, the minimum current flow for a BMS should be more than 55A.

Plan B:



The image shows a product page for a DALY BMS (Battery Management System). On the left is a red and black rectangular device with two cables (black and blue) plugged into the top. The device has a large 'S' logo and 'DALY BMS' text. To the right of the device, the text '60A' is prominently displayed in a large, bold, black font, flanked by red horizontal lines. Below this, the dimensions '48*75*14mm' and '1.88*2.95*0.55inch' are listed in a red box. A red button below the dimensions says 'Gift: NTC, Cable'. To the right of the dimensions, there is a large '60A' text. Further right, the product name 'DALY HARDWARE BMS with NTC Li-ion 10S 36V 13S 14S 48V 16S 17S 60V LFP 4S 8S 16S 24V G H SERIES 15A 20A 40A 60A' is listed, followed by the price '\$34.50'. Below the price, there are two orange buttons: '★5% Off For First Order★ : VCYE2BSCQ596 Copy' and '★\$20 Off Over \$300★ : TKVTMAA3SE4 Copy'. Below these, the text 'COLOR: LIFEPO4 12S 36V' is shown. A row of battery icons follows, with '15A' and '20A' options. Below the icons, the text 'CURRENT: 60A NTC' is shown. A row of buttons follows: '15A NTC', '20A NTC', '40A NTC', and '60A NTC'. Below these, there is a quantity selector with a minus sign, '1', and a plus sign, followed by a red 'ADD TO CART' button and a heart icon. Below the 'ADD TO CART' button, there is a yellow button that says 'Pay with PayPal' and a link 'More payment options'.

DALY BMS

60A

48*75*14mm
1.88*2.95*0.55inch

Gift: NTC, Cable

DALY HARDWARE BMS with NTC Li-ion 10S 36V 13S 14S 48V 16S 17S 60V LFP 4S 8S 16S 24V G H SERIES 15A 20A 40A 60A

\$34.50

★5% Off For First Order★ : VCYE2BSCQ596 Copy

★\$20 Off Over \$300★ : TKVTMAA3SE4 Copy

COLOR: LIFEPO4 12S 36V

15A 15A 15A 15A 15A 15A 15A 15A 15A 15A 20A 20A

CURRENT: 60A NTC

15A NTC 20A NTC 40A NTC 60A NTC

- 1 + ADD TO CART

Pay with PayPal

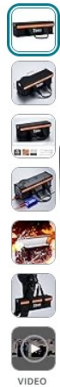
More payment options

System has similar specs however it is more advantageous as it has better current and voltage control as shown by documentation.

5. Complete configuration/ Volume

Best configuration would be 13S1P for Samsung 50S batteries with a DALY BMS(5Ah,45A,46.8V). Considering the volume of the spacers used this will result in a max height: 132.4mm, Width:38mm, Depth:288mm

6.LIPO bag



Zeee Lipo Safe Bag Ebike Battery Fireproof Charging Bag Explosionproof Lipo Battery Bag Large Capacity for Storage Charging (19.3 * 5.9 * 5.9in)

[Visit the Zeee Store](#)

4.0 ★★★★★

12 ratings | [Search this page](#)

USD ~~32~~⁹⁷

prime One-Day

FREE Returns ▼

Save up to 3% with business pricing. Sign up for a free Amazon Business account

About this item

- **【Zeee Safe Bag Material】** - 100% inner fireproof fabric, interlayer non-woven fabric with flame retardant effect, and PVC fiber outer layer, which effectively isolate air and improve the safety when charging. Heat insulation temperature up to 1000°F. Please note the bag can't prevent the fire if the temperature over 1000°F.

Possible lipo bag with dimensions given

7.Possible charger



Labtec 54.6V 48V 2A Electric Bike Battery Charger for 48V Lithium Battery E-Bike Mobility Scooter Electric Scooter Electric Wheelchair Batteries, 3pin XLR Plug

Brand: Labtec

3.8 ★★★★★

31 ratings

100+ bought in past month

USD ~~25~~³⁶

prime

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- **【Charge Parameters】** Output: 54.6V 2A; Input: AC 100-240 V, 50-60 Hz; Maximum power up to 110 W; Connector Size: 3-pin XLR connector(1 +, 2 -); Note: 48 V is the battery voltage and 54.6 V is the charging voltage.
- **【Compatible Models】** Compatible with all 48V lithium battery electric bicycles, electric scooters, mobility scooter, electric wheelchairs, golf carts that are charged via a 3-pin XLR plug.
- **【LED indicator】** The LED light indicator shows the charging status of the battery. Green light ON means standby or fully charged; red light ON means charging.
- **【Safety protection】** Power supply made of the highest quality material with protection functions against overvoltage, short circuit and internal overheating to extend battery life.
- **【Certifications and after-sales service】** LabTEC products are CE / RoHS certified. 24-month warranty, 12-month replacement, 12-month repair.