



FMB-24N70.2C



Features

- Data Visibility – APP – Integrated with Battery
- Made in Europe
- BMS with auto on/off hibernate function, no quiescent current draw
- Scalable up to 16pcs in parallel, Engineered for hot swapping
- Automatic Master/Slave CAN protocol with virtual master
- Battery parameter logger
- Battery performance and lifetime optimizer based on all battery values for charging/discharging
- Battery heater - Optional
- 2 years warranty

Applications

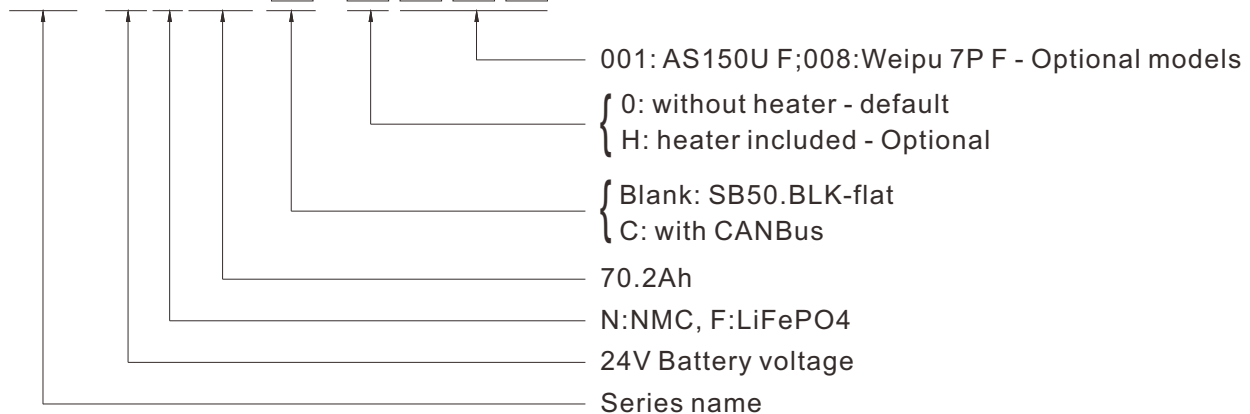
- Electric mobility
- Industry
- Energy storage

Description

The FMB series from MEAN WELL EUROPE is designed for multipurpose use within i-ion 7S (24V), 14S (48V), and 17S (60V) battery setups. This battery is suitable for parallel operation. Due to the modular concept, it is possible to suit the battery with different types of connectors and with or w/o a digital indicator, CAN or Bluetooth connectivity and an IoT database connection. The efficient electronics make it possible to store the battery for over 2 years without recharging.

Model Encoding / Order Information

FMB - 24 N 70.2 -



| Part Number | Battery Description | Note |
|-------------------|---|----------|
| FMB-24N70.2 | Battery NMC 7S 24V 70.2Ah, SB50.BLK-flat | In Stock |
| FMB-24N70.2C | Battery NMC 7S 24V 70.2Ah, SB50.BLK-flat +M12-F | In Stock |
| FMB-24N70.2C-0001 | Battery NMC 7S 24V 70.2Ah, AS150U F | In Stock |
| FMB-24N70.2C-0008 | Battery NMC 7S 24V 70.2Ah, Weipu 7P F | In Stock |

*C: With CANBus

1. Product specifications

| Item | Value | Remark |
|----------------------------------|----------------------------------|---|
| Product category | Lithium batteries | |
| Product name | Battery Li-ion 7S 24V 70.2Ah FMB | |
| Weight | 10.2 Kg | |
| Dimensions | 265 x 74 x 410 mm | (LxWxH) |
| Voltage nominal | 25.2 V | |
| Voltage max | 29.4 V | |
| Voltage min | 21.0 V | |
| Capacity Ah | 70.2 Ah | |
| Discharge current continuous | 50A | |
| Discharge current peak | 100A | 3 sec |
| Typical charge current | 12A | |
| Max charge current | 15A | *Specified max charge current can be 35A with CAN controlled charge algorithms. |
| Charge method | CC/CV | |
| Operating temperature; charge | 0 ~ 45°C | |
| Operating temperature; discharge | -10 ~ 65°C | |
| Storage temperature | -20 ~ 60°C | |

*Please contact the specialists of MEAN WELL EUROPE for the details. CANBus charger is necessary.

2. Cell specifications

| Item | Value | Remark |
|----------------------|-----------------|--------|
| Cell type | DMEGC 18650-26E | |
| Nominal voltage cell | 3.60 V | |
| Cell capacity | 2,600 mAh | @0.05C |
| CID | Yes | |
| Cells in series | 7 | |
| Cells parallel | 27 | |

3. BMS specifications

| Item | Value | Remark |
|---------------------------|------------------|--------|
| Continuous current | 60A | |
| Cell auto balance | Yes, 72±10mA | |
| Short circuit protection | Yes | |
| Temperature protection | Yes | |
| Overcharge protection | Yes, 4.28±0.025V | |
| Over discharge protection | Yes, 3.00±0.05V | |
| Over current protection | Yes, 120A±20A | |
| Self power consumption | 30-100uA | |

4. BMS specifications

The control PCB is an add-on for the BMS, making the battery "smart". This PCB gathers all applicable data and processes it for Bluetooth or CAN communication. To save energy and increase shelf life, this control PCB will shut down when the battery SOC < 50% and the battery is not used for 25 hours. To wake up, one of the following actions should be performed: The battery key switch* must be pulled high, the button pressed or a current of 2+Amp must be drawn by charging or discharging.

*if installed

5.Connectors and terminals

The FMB series is designed to be fitted with different types of connectors, depending on the application. MEAN WELL EUROPE offers two standard part-numbers for 70.2Ah battery pack, others may be discussed.

| P/N | Value | Remark |
|-------------------|--|------------------|
| FMB-24N70.2 | Anderson SB50/BLK - flat connector | Power only |
| FMB-24N70.2C | Anderson SB50/BLK - flat connector + M12-Female/A coded/5-pins | Power and CANbus |
| FMB-24N70.2C-0001 | AS150U F 1(KEY) 2(CAN high) 3(CAN low) 4(NC) | Power and CANbus |
| FMB-24N70.2C-0008 | Weipu 7P F 1,2(BAT+) 3(optional) 6,7(BAT-) 4(CAN HIGH) 5(CAN LOW) | Power and CANbus |

6.Enclosure

| Item | Value | Remark |
|------------------|-------------------------------------|-----------|
| Material | PC/ABS/fiber reinforced PC/Aluminum | |
| FR Class (UL-94) | HB | Or better |

7.Safety

| Item | Value | Remark |
|------------------------|-------|------------------------|
| IEC62133-2 | Yes | |
| MSDS | Yes | |
| UN 38.3 | Yes | |
| CE | Yes | |
| Temperature protection | Yes | 1x digital + 2x analog |

8.CAN-bus (optional)

MEAN WELL Europe provides good local service, and the design house can fit a basic CAN-bus feature, compliant with different CAN-bus protocol suited for parallel (hot-swap) operation. A detailed CANbus guide is available for protocol instructions. To give the complete solution, MEAN WELL smart charger is 100% compatible with the lithium battery packs.

Note: For swappable systems it is advised to put an ESD protection in your CANbus, e.g. a TSV diode.

| P/N | Value | Remark |
|---|------------------------------|---|
| Baudrate | 250Kbps - default setting | 500Kbps is optional |
| CANBus | CAN2.0B, CANOpen | |
| Data format | Little endian | |
| Data type | Unsigned | |
| Node-ID | 15 | |
| Available data basic protocol | Battery status | Ready, Disengaged, Charging, Discharging, Preheating, Error |
| | SOC | % |
| | Voltage | V |
| | Current | A |
| | Battery temperature | °C |
| Available data advanced protocol (suitable for parallel stacked battery setup) | Pack status | Ready, Disengaged, Charging, Discharging, Preheating, Error |
| | Pack SOC | % |
| | Pack voltage | V |
| | Pack current | A |
| | Pack max temperature | °C |
| | Pack min temperature | °C |
| | Active batteries in the pack | # |
| Passive batteries in the pack | # | |
| Individual battery data request (advanced protocol only) | Battery ID | # |
| | Lowest lifetime voltage | V |
| | Highest lifetime voltage | V |
| | Cycle life | # |
| | Number of deep discharges | # |
| | Number of subzero charges | # |

9. BLE data (optional)

MEAN WELL EUROPE offers an in-house built smart phone application that may be altered upon client request.

| P/N | Value | Remark |
|--|--|---|
| Current status | Battery status ^{basic} | Ready, Disengaged, Charging, Discharging, Preheating, Error |
| | State of charge ^{basic} | 0-100% |
| | Voltage ^{basic} | V |
| | Current ^{basic} | A |
| | Outside (ref) temperature ^{basic} | °C |
| | Battery temperature | °C |
| Battery healthcare | Deep discharges | # |
| | Subzero discharges | # |
| | Min voltage | V |
| | Max voltage | V |
| | Max humidity level (water damage) | Level between 1-100 |
| | Max charge current | A |
| | Max discharge current | A |
| History | Cycle life ^{basic} | # |
| | Used energy (Wh) over last 5 runs | A run is defined as the period between two charge events that last at least 8 seconds |
| Multiple packs status (optional, combined with CANbus) | Short ID | Battery ID starting at 1 |
| | Pack state | Same as "Battery status", but for the whole parallel pack |
| | Pack SOC | % |
| | Pack current ^{basic} | A |
| | Number of active packs ^{basic} | # |
| | Number of passive packs ^{basic} | # |
| | Pack highest temperature | °C |
| | Pack lowest temperature | °C |

Items marked with ^{basic} are available in our free app "**Charged by MEAN WELL**", available in the Apple app store and Google Play store. MWEU offers custom apps for commercial use.

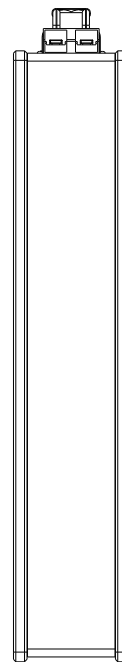
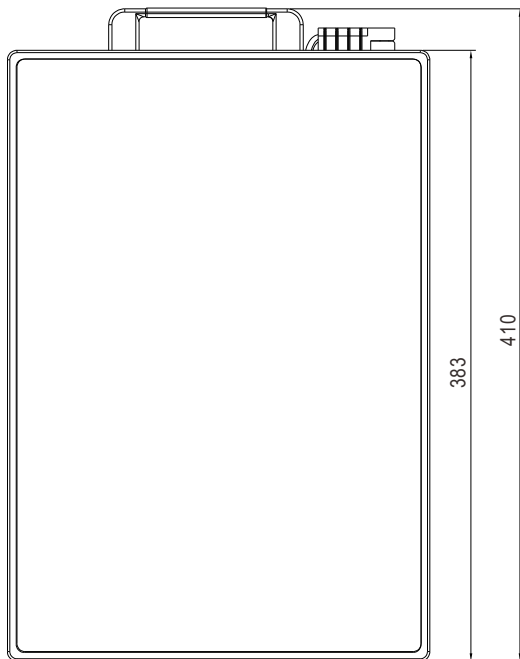
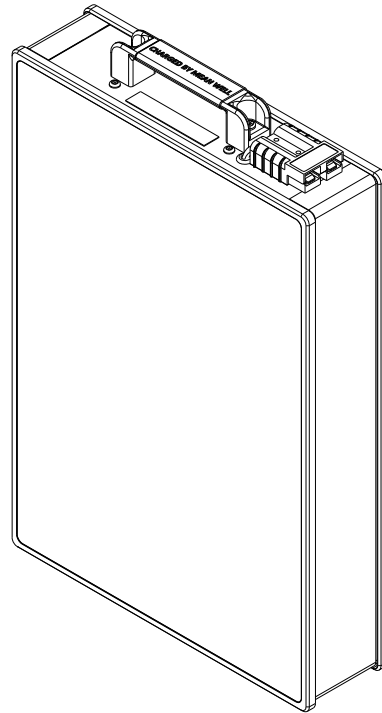
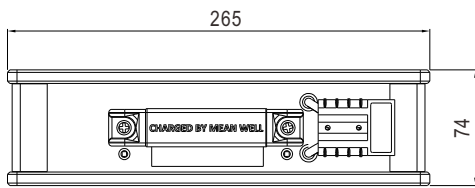
10. IoT (optional)

With the optional Bluetooth module all battery data can be sent to a secured server of AWS (Amazon Web Services) and stored in a NoSQL format database (MongoDB). Data may only be shared upon customer request.

MECHANICAL SPECIFICATION

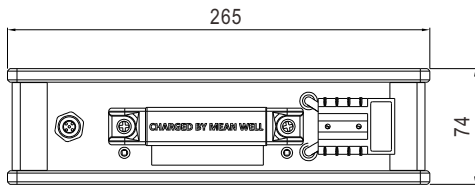
Unit:mm

FMB-24N70.2



Unit:mm

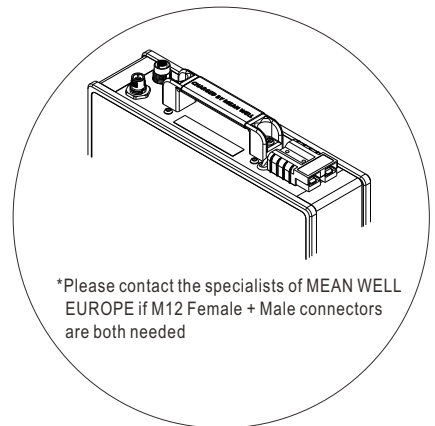
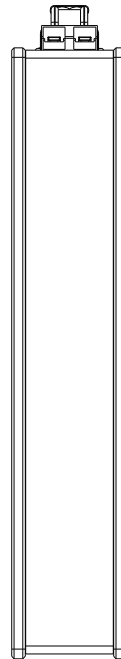
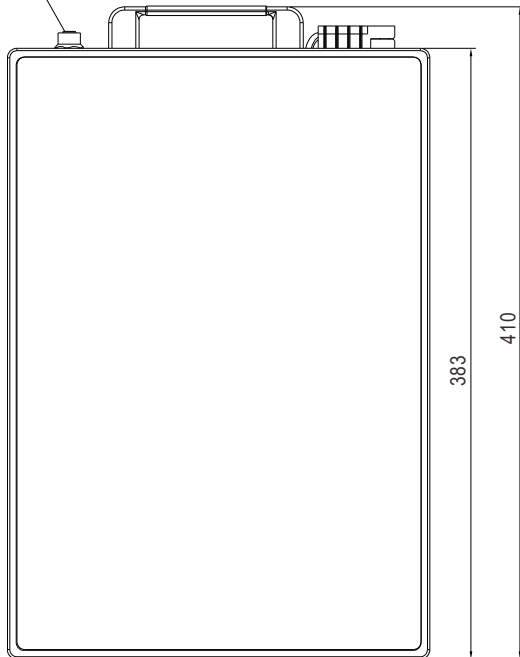
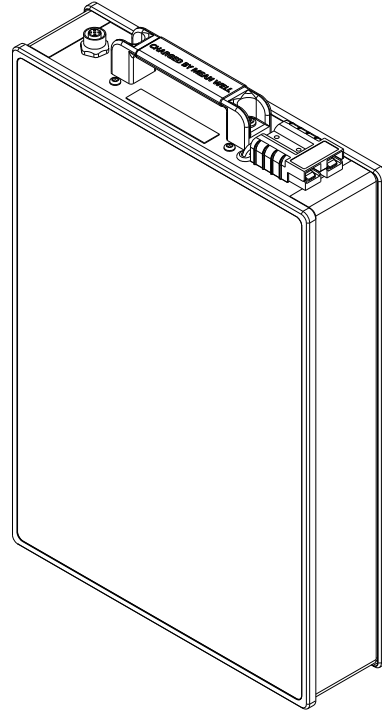
FMB-24N70.2C



M12-F, A-coded, 5-pins
1(NC) 2(KEY) 3(NC) 4(CAN HIGH) 5(CAN LOW)

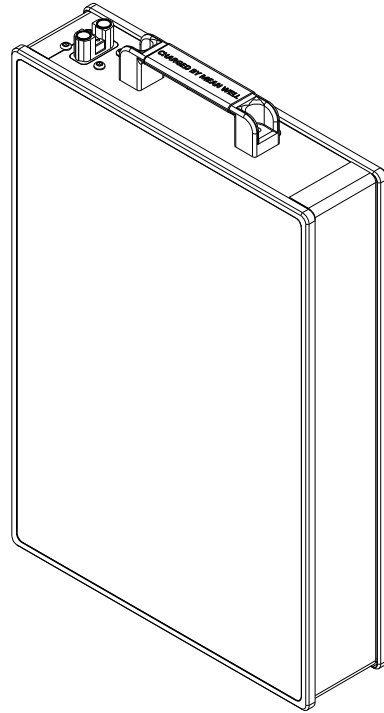
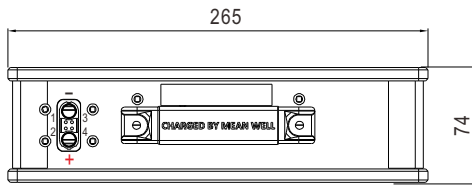


*The "KEY" is an input pin that sends a positive signal to wake up the intelligent layer from hibernation mode.



Unit:mm

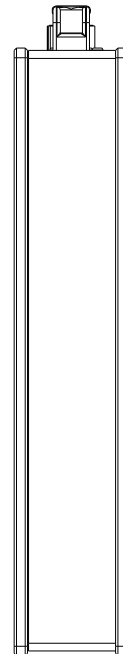
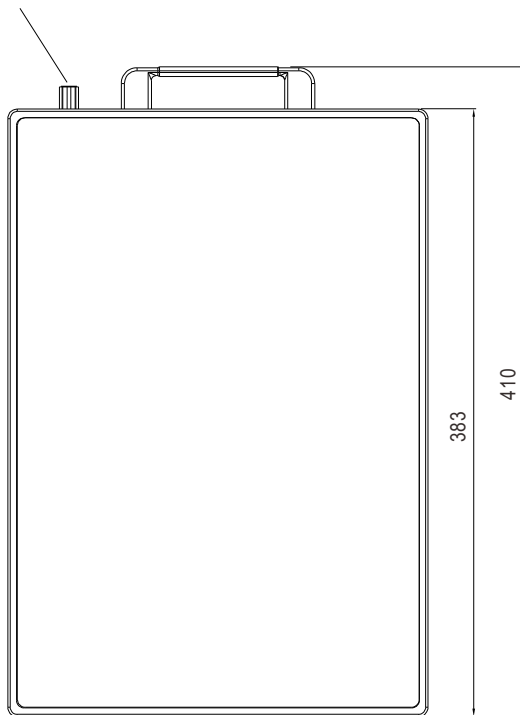
FMB-24N70.2C-0001



AS150U F
1(KEY) 2(CAN high) 3(CAN low) 4(NC)

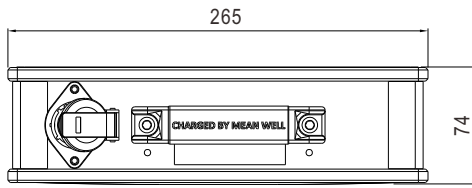


*The "KEY" is an input pin that sends a positive signal to wake up the intelligent layer from hibernation mode.



Unit:mm

FMB-24N70.2C-0008



Weipu 7P F
1,2(BAT+) 3(optional) 6,7(BAT-) 4(CAN HIGH) 5(CAN LOW)

