TDP-BM-100

Battery Status Monitor

OPERATING MANUAL

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Contents

1. Introduction

TDP-BM-100 is the device of emergency monitoring battery status for magnet system. Emergency battery installed 9 to 18 in series due to output voltage; therefore, it is difficult to check each battery status.

TDP-BM-100, which is possible to check battery individually, is to find poor battery to show graph of battery status. In addition, it could be measured current of charging and discharging to calculate internal resistance value, and battery manages stably with alarming if set voltage dropped blow setting level.

2. Characteristics

- ◆ Realtime monitoring for battery status.
- ◆ Battery voltage checks intuitive to show as bar graph.
- ◆ It could distinct battery voltage with bar graph which color changes.
- ◆ Easy to set with touch panel.
- ◆ It has function to display status of charging and discharging.
- ◆ It is possible to measure internal resistance value for each battery.
- ◆ Output alarm for poor battery.
- ◆ It could select integral type and discrete type due to installation condition.

3. Purpose

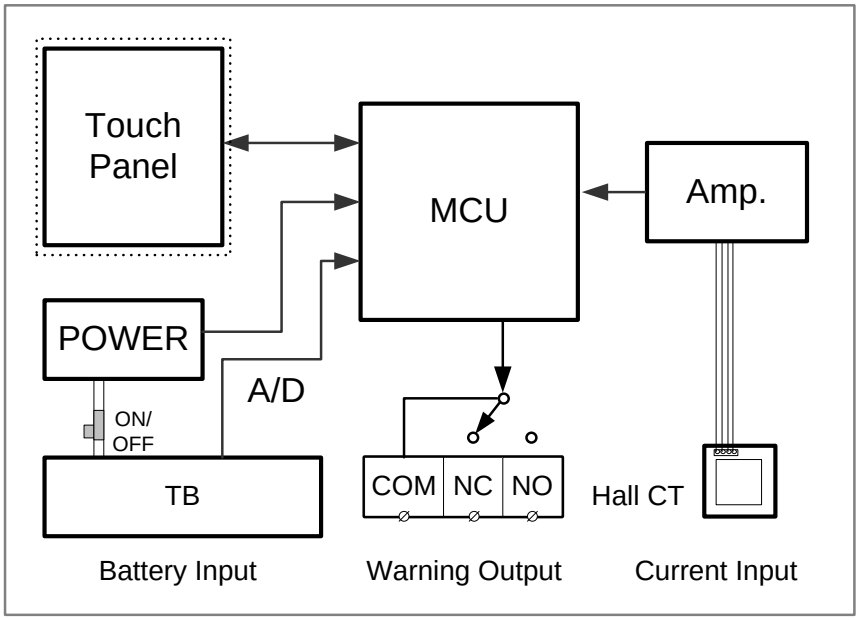
- ◆ Status of industrial battery monitoring device.

4. Basic Specification

- ◆ Input voltage : AC 80 ~ 240[V] single phase or Specific battery
- ◆ Touch panel : K600+ LCM
- ◆ Signal output : WARNING (RELAY contact : AC250V/DC30V, 5A)
- ◆ Quantity for monitoring battery : 19EA (Industrial 12V battery)
- ◆ Panel communication : RS-422 (※discrete type)
- ◆ Temperature range for operation : 0~85[℃]

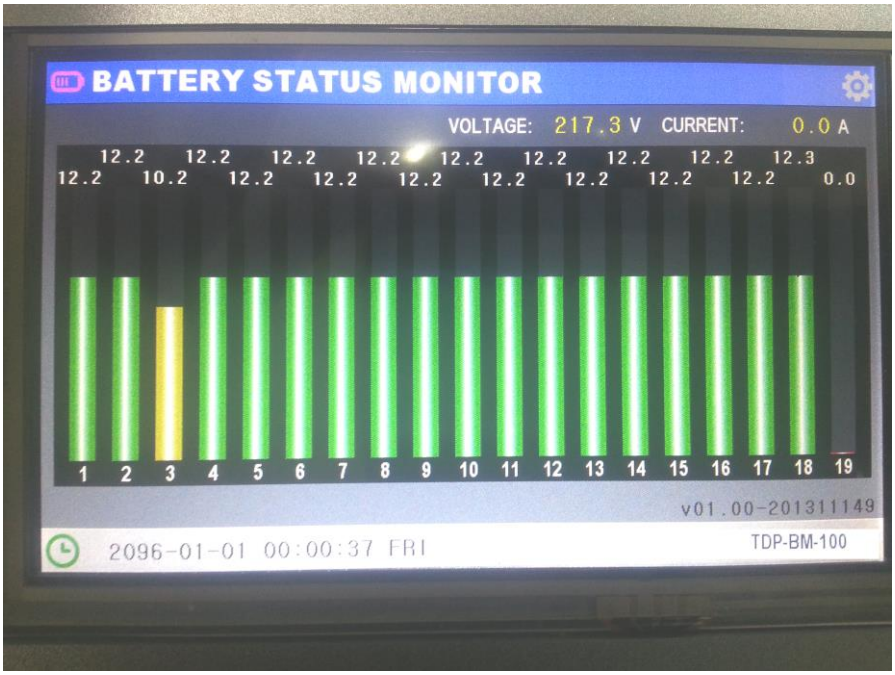
5. Configuration and Operation Principle

TDP-BM-100 consists as blow picture. MCU as a key component consists easily to check display data on touch panel as a graph type about battery status such as voltage of each voltage, total voltage of battery in series, and charging current. As well as, fault alarm will occurs to prevent negligent accident when battery has trouble.



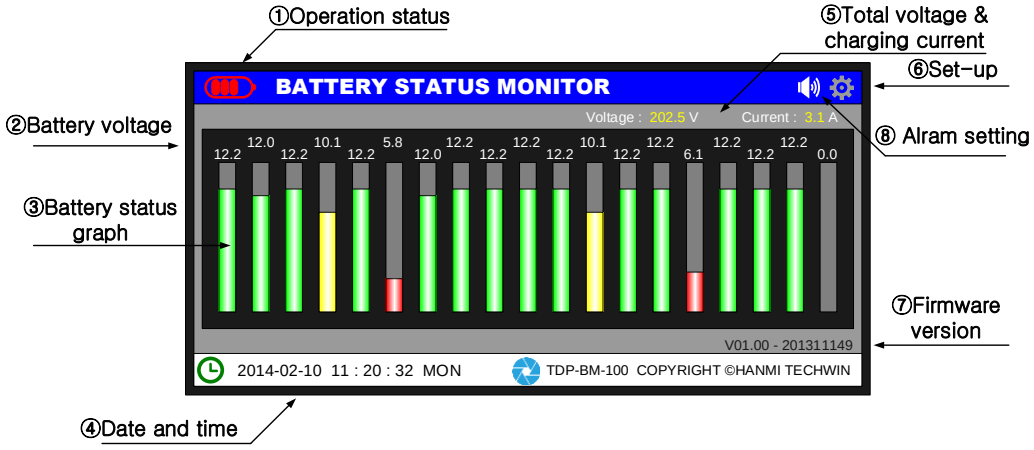
[Figure 1] Block diagram

[Pic 1] Main Board



[Pic 2] Display

6. Displaying data and setting



[Figure 2] Display for battery

6-1. Displaying data

① Operating status: It displays current battery status. When batteries are charging, charging icon will be displayed.

② Individual voltage for battery: Displaying voltage of battery individually.

③ Graph of battery status: Displaying current battery status.

- ◆ Green(Normal) → Voltage of battery is normal.
- ◆ Yellow → Voltage of battery is lower or overcharging(Overcharging is more than 125% than setting voltage).

◆ Red → Battery is overdischarging. Overdischarging is battery is blow 75% of setting voltage. It means necessary to charge or replace battery.

④ Date and time: Displaying date and time at present.

⑤ Total voltage and charging current: Indicate total voltage of batteries in series and charging current through current transformer.

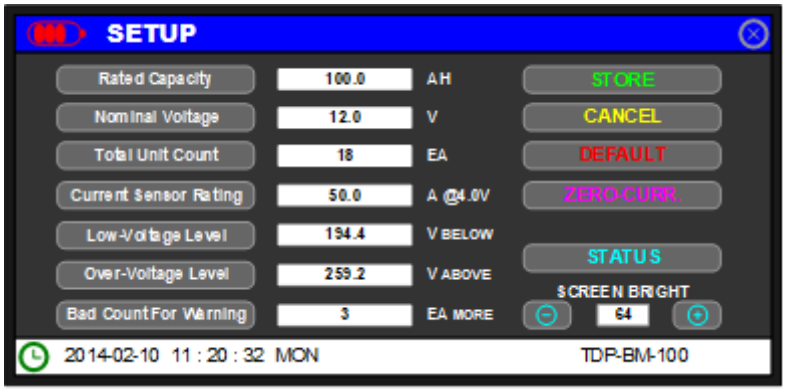
⑥ Set-up: Entering set up mode.

⑦ Firmware version: It shows current version of firmware.

⑧Alram setting : Turn off alarms that are currently working.

6-2. Setting

TDP-BM-100 is simple and convenience due to apply for touch screen type of display. You press saw-toothed wheel shape of icon to enter set-up mode. In the set-up mode, you could set battery capacity, battery voltage, quantity of battery, rated voltage of current sensor, standard of low battery alarm, overcharging alarm standard, and number of poor battery alarm. In addition, current transformer is able to zero adjustment and identify data with diagram for status of battery



[Figure 3] SET-UP mode

① Rated capacity: To set capacity base on usable battery specification.

② Nominal Voltage: To set voltage based on battery specification.

③ Total unit count: To set number of batteries in series.

④ Rated current transformer(CT): To set rate for current sensor to check charging and discharging current.

⑤ Low voltage level: To set low voltage level. When battery voltage is lower than low voltage level, alarm signal will output.

⑥ Over voltage level: To set over voltage level. When battery voltage is higher than over voltage level, alarm signal will output.

⑦ Bad count for warning: To set number of poor battery for alarm. This device

detects each battery voltage to determine poor battery or not. If poor battery is more than setting quantity, alarm signal will output.

⑧ Store: Save as present setting value.

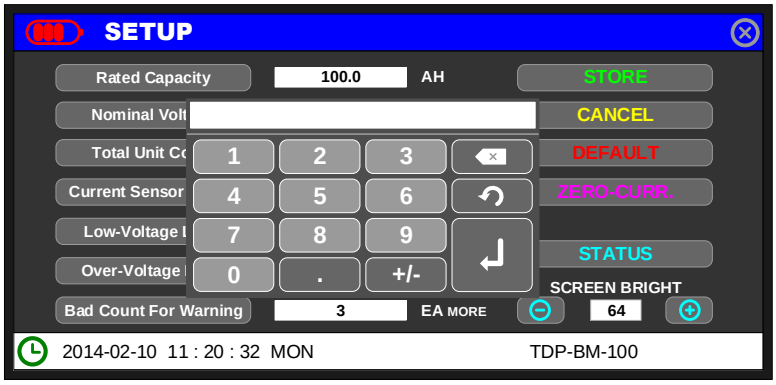
⑨ Cancel: Return to previous value.

⑩ Default: Restore saved setting to initial setting.

⑪ Zero adjustment current transformer(CT): To set standard voltage when offset occurs at current sensor.

⑫ Status: Current battery status as bar graph.

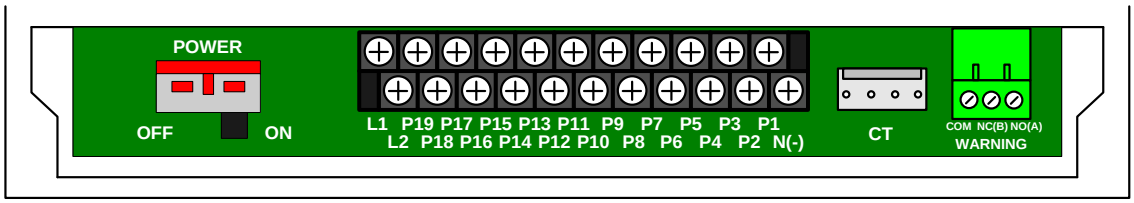
⑬ Screen bright: Adjust brightness +,- button.



[Figure 4] display for Setting

7. Wiring for terminal block

7-1 Outside view of terminal block



[Figure 5] **Outside view of terminal block**

7-2 Explanation of terminal block

① Power switch: Power ON/OFF

② TB22P: Connect to power and battery line.

◆ L1, L2 → Connect to power line(AC80~240V).

※ If you connect to AC voltage, it automatically operates with battery power.

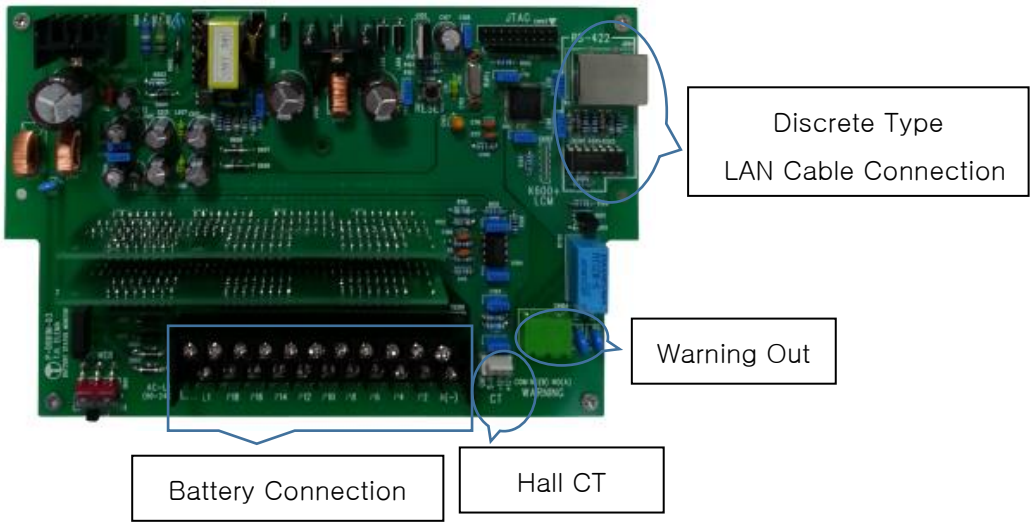
◆ N(-)~P19 → Connect to battery line. Please connect battery in series to connect N(-) with negative line of battery, and repeat this work.

③ Current Transformer(CT): Connect current transformer line for checking charging and discharging current.

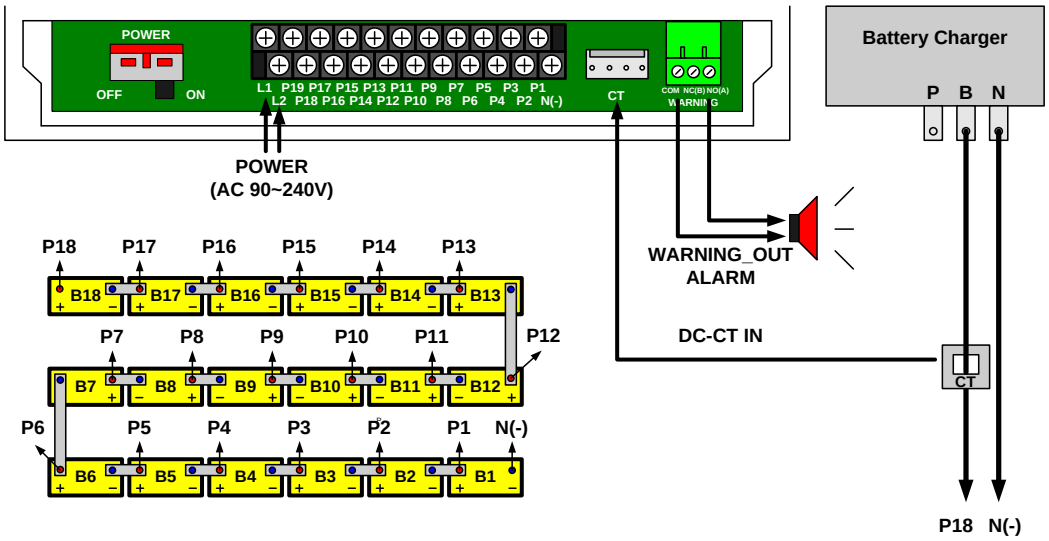
④ WARNING: When warning occurs, connect output alarm line.

- ◆ COM → Common terminal block.
- ◆ NC(B) → Normal Close terminal block.
- ◆ NO(A) → Normal Open terminal block.

8. Electrical wiring



8.1. Common



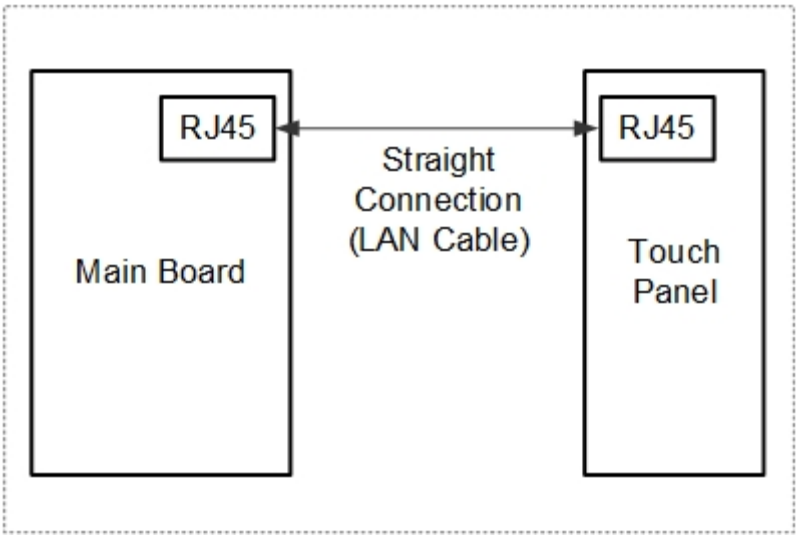
[Figure 6] Basic wiring

※ Connect P19, P18 if quantity is 18 batteries.

※ If the battery voltage is less than 85 Vdc, the function will not work. If necessary, connect to AC power.

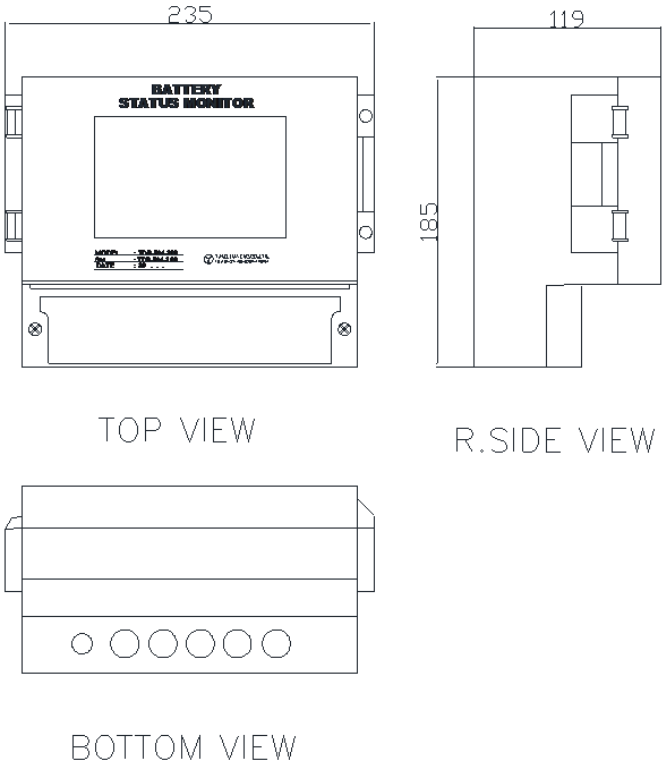
8.2. Discrete Type Additional Wiring

- LAN Cable(Straight type)



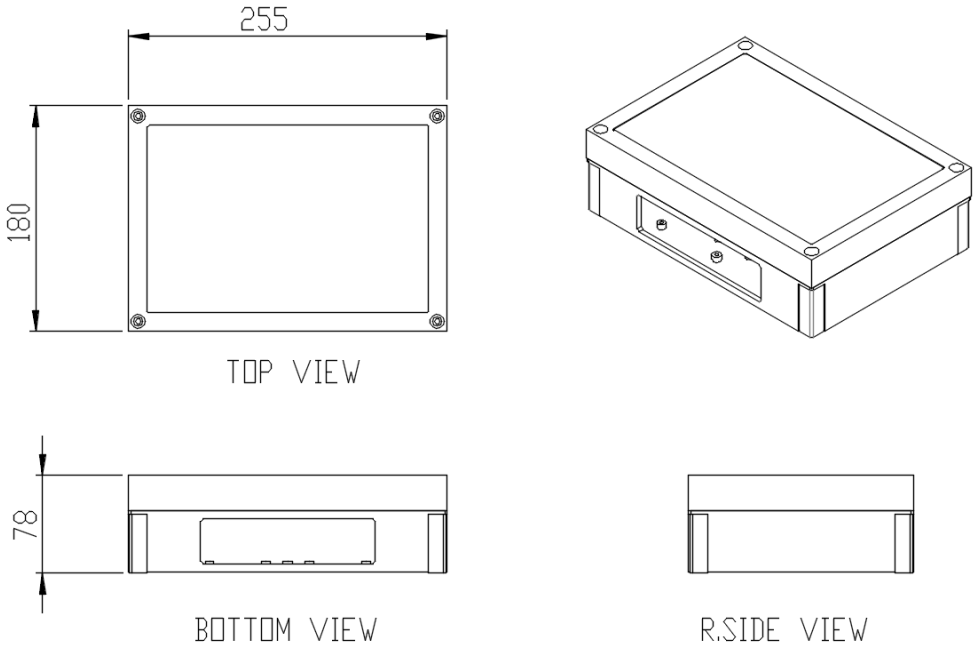
9. Outside dimension

9.1. Integral type

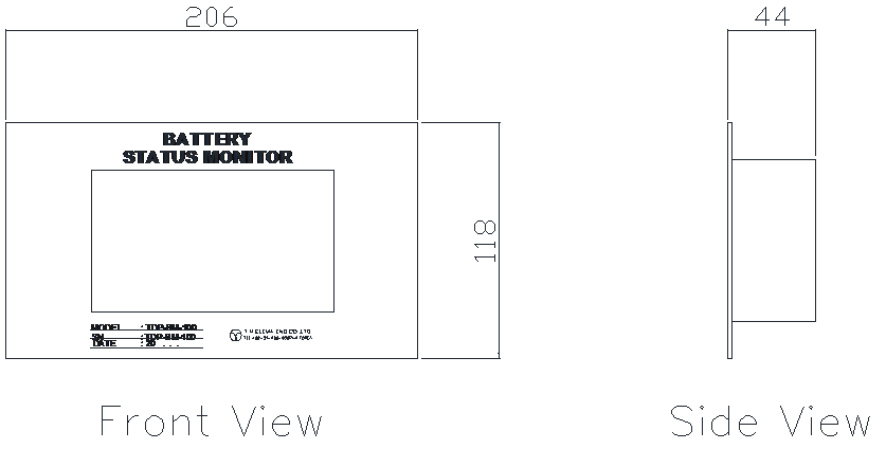


[Figure 7] Integral type

9.2. Detachable type



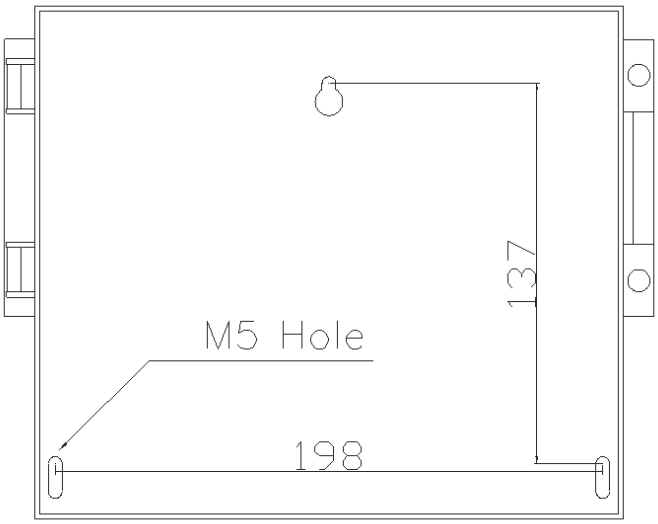
[Figure 8] Discrete type – Main Board



[Figure 9] Detachable type – Touch Board

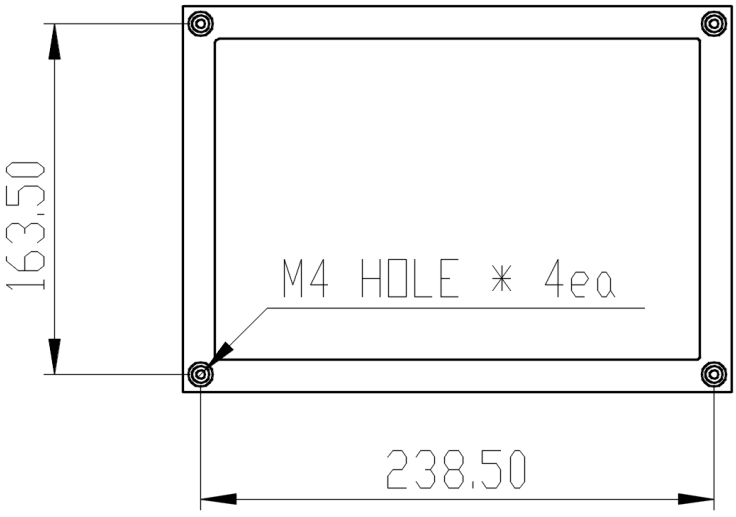
10. Mounting hole

10.1. Base mounting hole



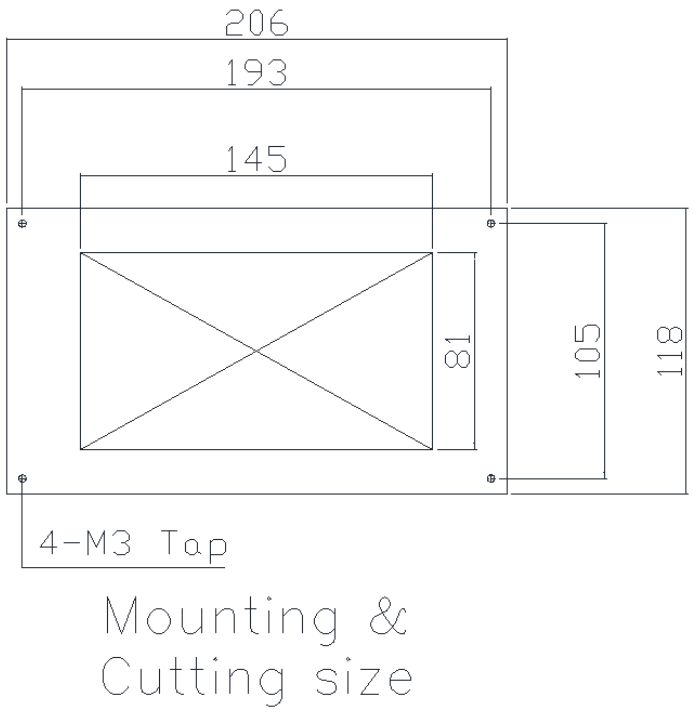
[Figure 10] Base mounting hole

10.2. Base mounting hole (Detachable)



[Figure 11] Detachable type bracket

10.3. Detachable touch board bracket



[Figure 12] Detachable type bracket