SYNTEC TECHNOLOGY CO.,LTD.

B01-SAP-BATT-0-03

Waterproof Cell Box

Basic Installation Instructions V3.0

Dear users, please go through the instructions in detail before the installation. Also, please hand the manual to the actual operator of the machine and preserve it properly.

Cell Box is an important product bundled with an absolute encoder. For the safety of both operators and the machine, the installations and adjustment should be done by professional electrical engineers. Heed all the descriptions with "DANGER," "WARNING," and "CAUTION" in the manual. For help and service, please contact the branches in each region. Our professionals are glad to be at your service.

Please comply with the guidelines below before finishing reading the complete manual:

- The installing environment should be indoor and without water vapor, corrosive or flammable gas.
- Implement the wirings according to the wiring diagram.
- The grounding must be strictly implemented and follow the current National Electrical Code. (References: NFPA 70: National Electrical Code,2005 Ed.)

1. Safety Precautions

Please pay extra attention to the instructions below while operating the product.	
WARNING	■ Please check the appearance of the product when unboxing. If there is any fault, please contact the company or dealer immediately. Do not attempt to disassemble, repair, or alter the equipment yourself. ■ The cell box uses D LR20 batteries. Do not use other types of batteries. ■ Please apply dry batteries of good qualities. The leaking acid of poor dry batteries will damage the cell box. ■ Only use batteries recommended for your device. Do not mix different brands of batteries or batteries with different charge levels. Doing so might cause battery explosions. ■ Please remain the power on when altering the batteries to prevent the absolute position of encoders from losing. ■ Do not attempt to disassemble or alter the equipment yourself. ■ Do not operate the product in places exposed to water vapor, corrosive, or flammable gases. It might cause damage to the device, electric shocks, fire, or explosion. ■ Do not install the product in the environment exceeding the specified temperature, or it may cause malfunction or damage to the product. ■ The product is for industrial use instead of household. ■ Do not apply the product to machines that might lead to casualties, device damage, or system shut down. ■ Short circuit and malfunction may occur when the conductive iron touches the components.
CAUTION	■ Alkaline batteries are recommended since the absolute encoders may not be driven by rechargeable batteries due to the low voltage. ■ It is recommended that the batteries should be replaced at least once a year due to the self-discharge effect of batteries. ■ When the application situation is greater than the 4 axes, it is recommended to increase the frequency of battery replacement. ■ Please install the product in a safe area and keep the area clean. Keep iron shavings, wires, water, corrosive gas, and liquid from the product to avoid malfunction. ■ Storage Temperature Range: -20℃~60℃ Storage relative humidity range: 0% to 90% and without condensation ■ Operating temperature range: -10℃~55℃ ■ Please turn off the power before plugging/unplugging the cables or modifying the wirings to prevent electric shocks or damage to the driver. ■ Please make sure all the terminals are in the correct positions while wiring to prevent the driver from damage caused by wiring mistakes. ■ Do not touch the terminals within 10 minutes after cutting off the power in case the residual voltage might cause electric shocks.

2. Installation Descriptions

A. Unscrew the screws on the cell box counterclockwise with a screwdriver and remove the cover of the cell box.

B. After the cover is removed, apply new batteries correctly according to the polarities marked on the stickers in the cell box, as shown in Figure 1.

Figure 1 Polarities of batteries.

C. After applying new batteries, lock the cover according to step A but in reverse order. Recommended torque value: 5 kgfcm.

※Note the orientation of the cover. If installed in a wrong direction, the cover cannot fit tightly due to the foolproof, as shown in Figure 2 and Figure 3. If the cover cannot close fit, please check the orientation of the cover.

※Notice the notch of the battery holder should be set on the other side of the becu finger (refer to Figure 4), or it will affect the assembly and cause the waterproof performance to fail.

D. Certified batteries with guaranteed capacity and lifespan are recommended. The voltage might drop suddenly due to overload situations of low-quality batteries and cause the cell box to fail. Thus, high-quality batteries of big brands such as Nanfu or Panasonic are recommended.

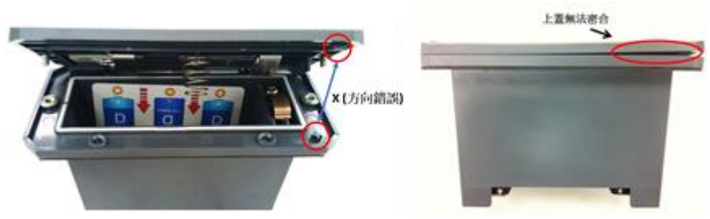


Figure 2 Wrong orientation of the cover of the cell box.

Figure 3 The correct orientation of the cover of the cell box.

Figure 4 The right direction of the cell box holder.

E. Syntec Waterproof Cell Box should use D LR20 batteries. Do not use other types of batteries. Notice the expiry date of the batteries. If the batteries are about to expire within a year, they cannot be used. The expiry date of batteries can be observed at the cathode as the arrow indicated in Figure 5.

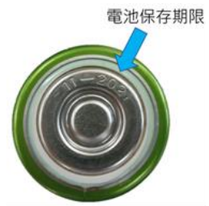


Figure 5 The expiry date of the battery.

3. Installation Method 1: Electric control box

3.1 The Dimension of Syntec Waterproof Cell Box

L150*W72.6*H96.5 (mm). The detailed dimension is shown in Figure 6.

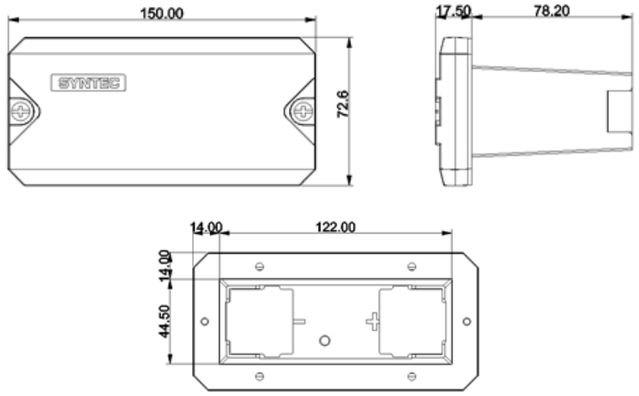


Figure 6 Dimension

3.2 Mounting Hole Specifications

One of the installing methods of the Syntec Waterproof Cell Box is to mount a hole on the electric control box for the cell box and fix the cell box to the electric control box with screws. The advantage of this method is that it is more convenient to change batteries from the outside than opening the electric control box. Please use the four M3X10 head screws provided with the box.

Recommended mounting sizes and positions are shown in Figure 7:

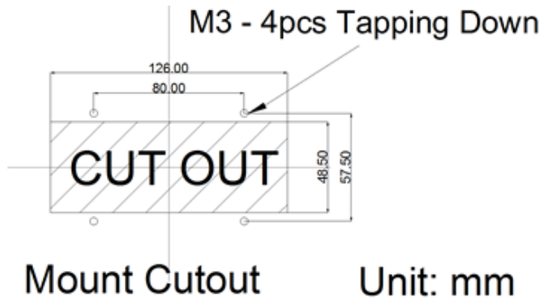


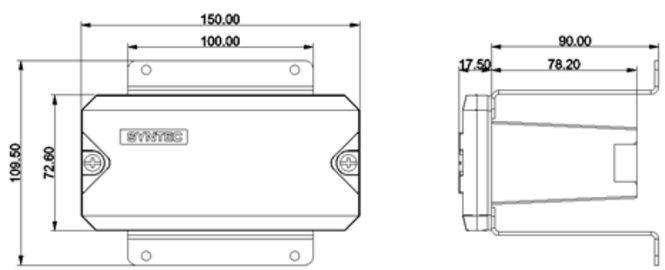
Figure 7 Mounting Dimension

If the installation is different from the method that the Syntec manual provided, Syntec Cell Box may not function normally!

4. Installation Method 2: L stand

A. Dimension of Syntec Waterproof Cell Box

The dimension of Syntec Cell Box with L stand: L150*W109.5*H107.5 (mm). The detailed dimension is shown in Figure 8. Syntec only provides the illustration of the L stand. Factories may manufacture according to the illustration provided.



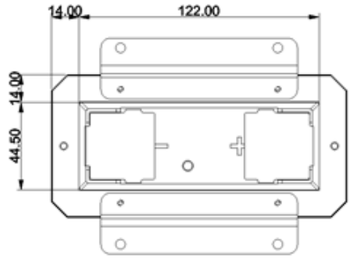


Figure 8 Dimension of the cell box with the L stand.

B. Mounting Hole Specifications

The installation of the Syntec Cell Box with an L stand is to mount four holes near the driver in the electronic control box. Attach the L stand to the cell box with the screws provided and fix the L stand to the electric control box according to the right position. Please refer to Figure 9 for the manufacture of the L stand, and Figure 10 for the mounting hole. If this installing method is adopted, please ensure the batteries can be replaced when the power is on. Otherwise, please install according to method 1.

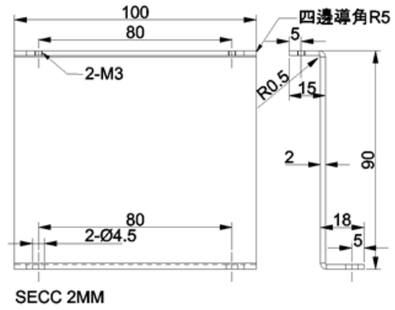


Figure 9 Illustration of the L stand.

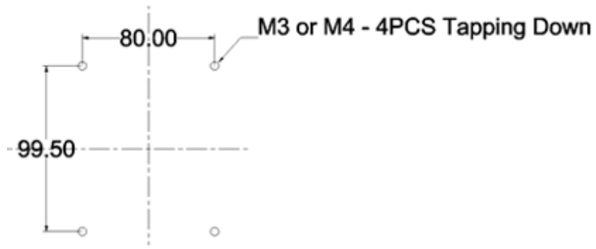


Figure 10 Mounting dimension of the cell box with the L stand.

5. Wiring Diagram

After the test of Syntec, though the voltage of the cell box is stable and there is no low-voltage alert, it is still recommended to replace the batteries once a year since the power provided by different types of batteries varies. When the application situation is greater than 4 axes, it is recommended to increase the frequency of battery replacement or the number of cell boxes, as shown in Figure 11.

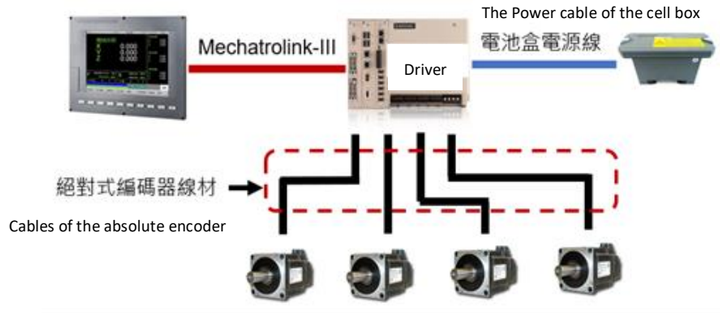


Figure 11 Wiring Diagram

When wiring, either O terminals or Y terminals are required. It is recommended to use Y terminals of Y1.25-3, Y2-3, and Y5.5-3, or O terminals of R1.25-3 and R2-3.

Recommended lock torque value: 3-5 kgF-cm.

Please fix the screw holes on the rear electrode according to the correct polarity, as shown in Figure 12.

Figure 12 Wiring Diagram of the cell box

If the insulation sheath of output power cables is damaged and touches the surrounding metal objects or driver, the heavy electric area marked in Figure 13 may cause the driver to fail. It is recommended to preserve at least 10 cm between the cell box, the external wires, and the heavy electric area of the encoder.

The excessive power cord of the cell box may cause additional voltage loss due to wire impedance. It is recommended that the power cable of the cell box be less than 50cm long, as shown in Figure 13.

If the installation is different from the method that the Syntec manual provided, Syntec Cell Box may not function normally!

Figure 13 The deposition of the cell box.

6. Wiring Notifications

- Please crimp or weld the wire connections while wiring.
- To prevent additional voltage loss due to wire impedance, oi is recommended that the cables of the cell box and the driver be less than 50cm long.
- It is recommended to preserve at least 10 cm between the cell box, the external wires, and the heavy electric area of the encoder.