



## Welding Oscillator

# OPERATION MANUAL

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### **SAFE MEASURE**

***Sincerely thank you for trusting and purchasing our products, as long as you use and maintenance according to the operation manual, our***

***equipment will be able to satisfy your need to use.***

**Before start and shakedown test equipment, it is absolutely necessary to read the following safety-related content.**

### **1.Electrical Safety**

### **2.Operator's Safety**



### **1.Electrical Safety**

(connections, maintenance, troubleshooting)

Professionals to operate and maintain the electrical equipment.

Professionals is technical trained who are able to identify the welding and electrical hazards.

#### **A) Connect the power**

Through with moderate sensitivity and high sensitivity differential residual current device to protect the connection between single phase (220v) and ground(differential circuit breaker; sensitivity between 1A and 30mA);

- If the wire is connected to a fixed position, grounding can never be separated from the electric shock protection device ,if there exists such a ground.
- If there has a switch please place to OFF position.
- Power cables must be of Good Quality.
- Power supply circuit must be equipped with emergency shut down device that should be easy to identify, placed should be conducive to a convenient shortcut.

#### **B) Workplace**

Ensure that operators and their assistants may be exposed metal parts not directly or indirectly charged with the grid wires or neutral conductor collide

Just use good insulation properties torch

The operator must be insulated the ground surface and the workpiece (use of gloves, safety shoes, dry clothes, leather, etc.).

Connect the ground wire and the part as close to the weld zone in a safe manner(This is to ensure good current flow)

Not allowed to touch the electrode wires and components (or nozzles) at the same time

When the welding work must be carried out under conditions of work (beyond the usual or normal, there is increased risk of electric shock) ,for example: the operator found it difficult to operate in a closed space), you must take additional security measures, in particular:

- ⊙ Use welding and cutting power with S
- ⊙ Enhance personal protection

**C) Maintenance and fault treatment**

Before any internal inspection and repair work, ensure that the equipment and electrical installations separately by electrically isolating the (electrical isolation is a set of actions designed to separate and keep the equipment off).

At least every six months, you must check one electrical equipment and accessories such as plugs, soft wire, conduit, connectors, extension leads, part fixture, such as welding or torch clamp conditions and make sure they are OK.

Faulty parts must be professional maintenance, or at best for these components to be replaced.

Moderately tighten electrical connections and cleaning, routine routine inspection.

For equipment maintenance and troubleshooting information, please reference the following maintenance section.

**2.Operator's Safety**

Operator must wear personal protective equipment insulation. Such protection must be kept high and dry to prevent electric shock, and keep it clean (no oil) to prevent burning.

Ensure that the equipment is in good condition and regularly replaced to ensure safety

Because welding slag splashing, so protect the equipment when weld cools.

Use "Liquidsaf" annotated ; "Liquidsaf" is an ethylene-propylene-containing product that irritate the skin and eyes. So when contact with the product must wear protective equipment (gloves and eye).

**INTRODUCTION OF EQUIPMENT:****Brief introduction of equipment**

Welding control oscillator is a dedicated welding oscillator controller and designed for automatic welding and surfacing, it can control the torch with a particular preset parameters swing to meet special requirements in the automatic welding process. It uses advanced ATMEL MCU control, with high brightness LED display and long life touch of a button , all input and output ports are used optically isolated, so that the controller is reliable, stable

performance, in specified environmental conditions can be a long uninterrupted work. Many years our company has been continuously improving the model, allowing users feel more simple and convenient when operation .

It can not only operate on the control panel, you can also real-time remote control through the back of the "remote control" and "RS232" connector (this part some features require additional purchase).

**Surrounding environment:**

- 1、 Ambient temperature:  $-10^{\circ}\text{C}\sim+55^{\circ}\text{C}$
- 2、 Relative humidity: 10%~95%
- 3、 Keep away from strong magnetic fields

**二、 COMPONENTS OF EQUIPMENT**

Controller, swing unit (linear oscillating unit and fillet oscillating unit), torch clamp unit,connecting cables,remote control box(optional) .



**INSTALLATION OF EQUIPMENT**

- 3.1、 Directly contact welding swing unit slider or fillet oscillating unit to vertical adjustment slider.
- 3.2、 Fix the torch (user supplied) to oscillating unit clamping unit.
- 3.3、 Two control cables are connected to the swing mechanism and controller socket, and then finally connect the controller's power cable (AC 220v).
- 3.4、 After the above completion of the installation, turn on the power to start debugging.



## FUNCTIONAL DESCRIPTION

### 1、 Basic functions

1.1、 Achieve slider or the output shaft to regular swing around a point with different speed.

1.2、 16 sets of swing parameters can be preset in the store window. Each parameter contains five data: left delay, the center delay, right delay swings and swing speed, and it can simultaneously display 5 data as well as the currently selected parameter group number of the swing. User can always adjust the center position of slider.

1.3、 With power and data protection, without loss of various operating parameters have been set after power failure.

1.4、 The user can modify the parameters provided by the control panel,

regardless of whether the oscillator is in working state. If the oscillator is in the process of running, currently being modified data will take effect when the next cycle begins (Note: Loop - refers to the wiggler slider moves from the center to the left, and then from the extreme left to the extreme right through the midpoint of the move, and finally return to the center of the rightmost process, that is called a cycle, the following meaning cycle are the same concept).

1.5、 All parameters can also be controlled through the remote control or connected of PLC with RS232 interface.

## **2、 Controller**

### **2.1、 Introduction of front panel**

1、 Power switch 2、 Torch center adjustment button 3、 Program display window 4、 Program selection button 5、 Start button 6、 Stop button 7、 Left delay display window 8、 Left delay adjustment button 9、 Center delay display window 10、 Center delay adjustment button 11、 Right delay display window 12、 Right delay adjustment button 13、 Swing amplitude display window 14、 Swing amplitude adjustment button 15、 Swing speed display window 16、 Swing speed adjustment button

### **2.2、 Introduction of back panel (from right to left )**

17、 ~220V electric outlet  
 18、 Fuse box (with 5A fuse)  
 19、 Remote control connection socket (12-pin socket)  
 20、 RS232 connection socket (9 core needle seat)  
 21、 Slider limit switch connection socket (4-pin socket)  
 22、 Stepper motor connector socket (5-pin socket)

## **3、 Remote control box**

According to user needs remote control box is optional (standard configuration without remote control box)

23、 Increase swing speed 24、 Lower swing speed 25、 Increase the swing frequency 26、 Reduce the swing frequency 27、 Centre moves left 28、 Centre moves right 29、 Start 30、 Stop

### **3.1、 Remote control connection socket**

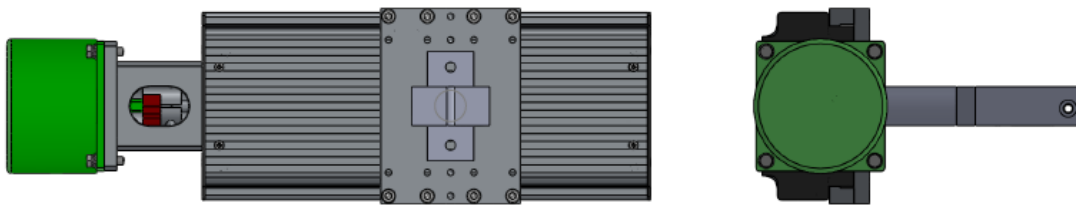
1-----GNE  
 2-----Reduce speed  
 3-----Increase speed  
 4-----Amplitude decreases  
 5-----Amplitude increases  
 6-----Stop  
 7-----Move left  
 8-----Move right  
 9-----Start

Wherein any one of 2 to 9 and 1 (GND) occurs short circuit , the corresponding function is to achieve.

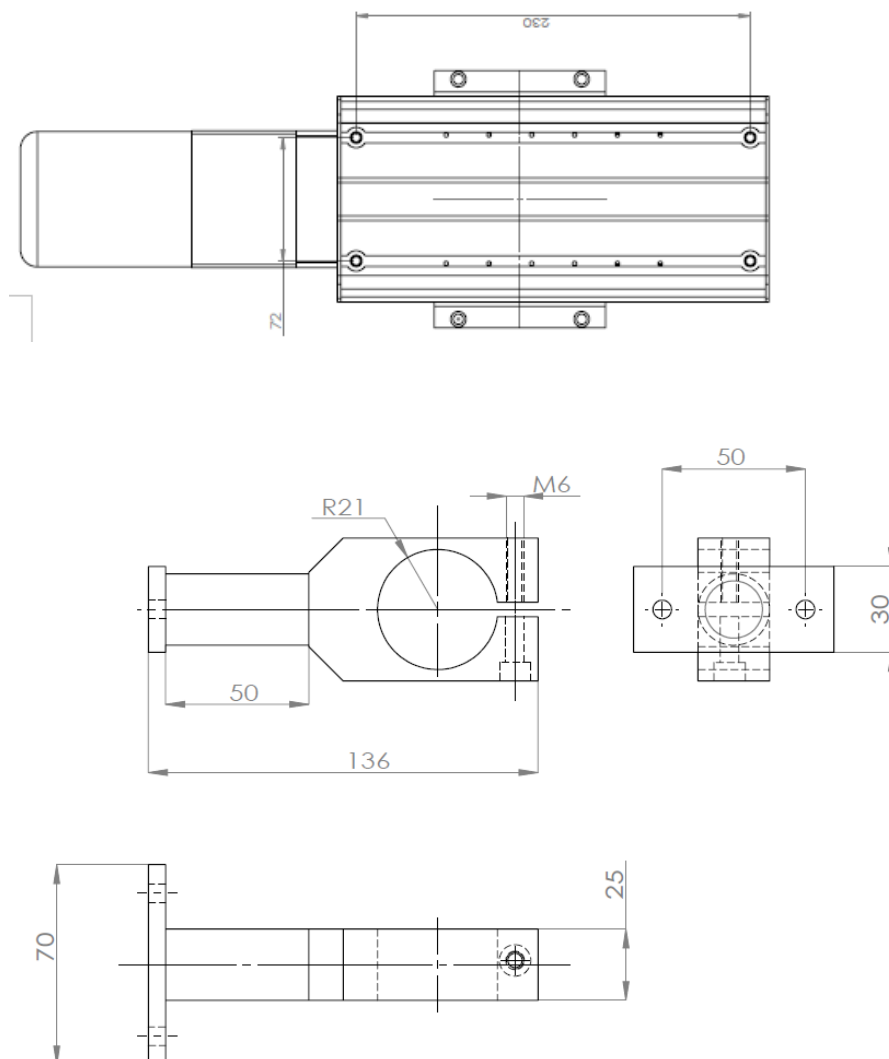
#### 4、 Swing unit

Two kinds: linear oscillating unit and fillet oscillating unit

4.1、 Linear oscillating unit is composed of stepper motor, precision skateboards, torch holder.

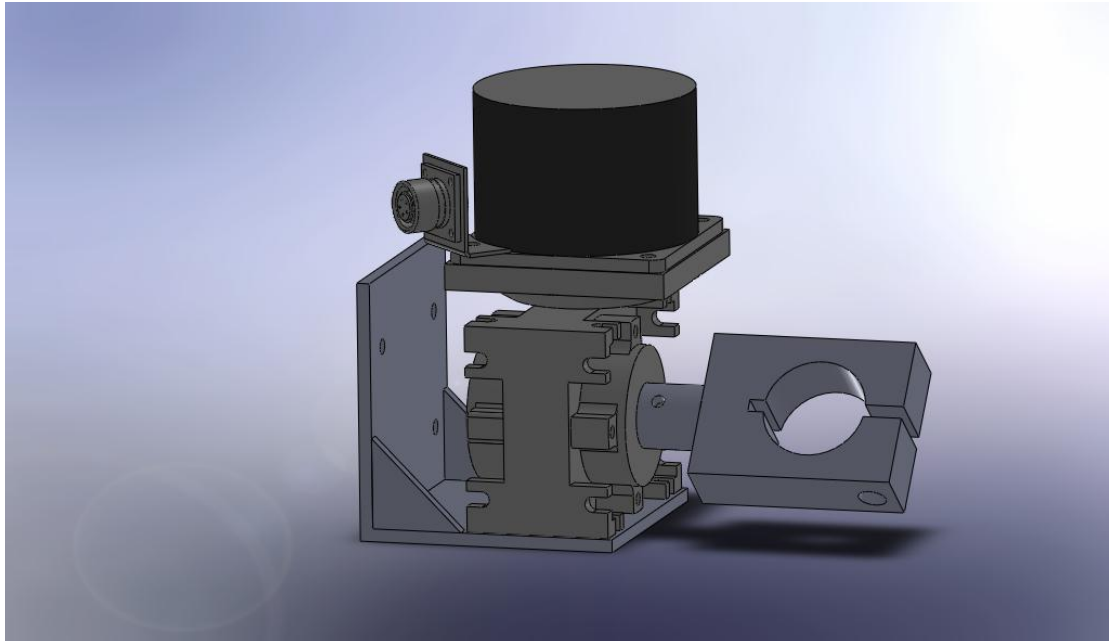


Linear oscillating unit mounting dimensional drawing

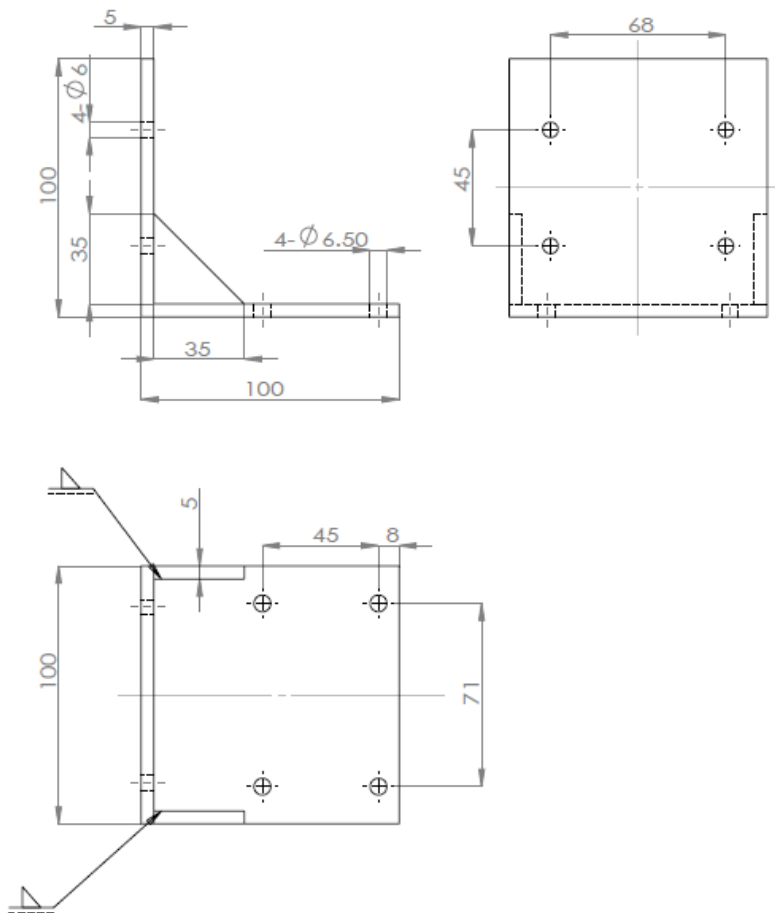


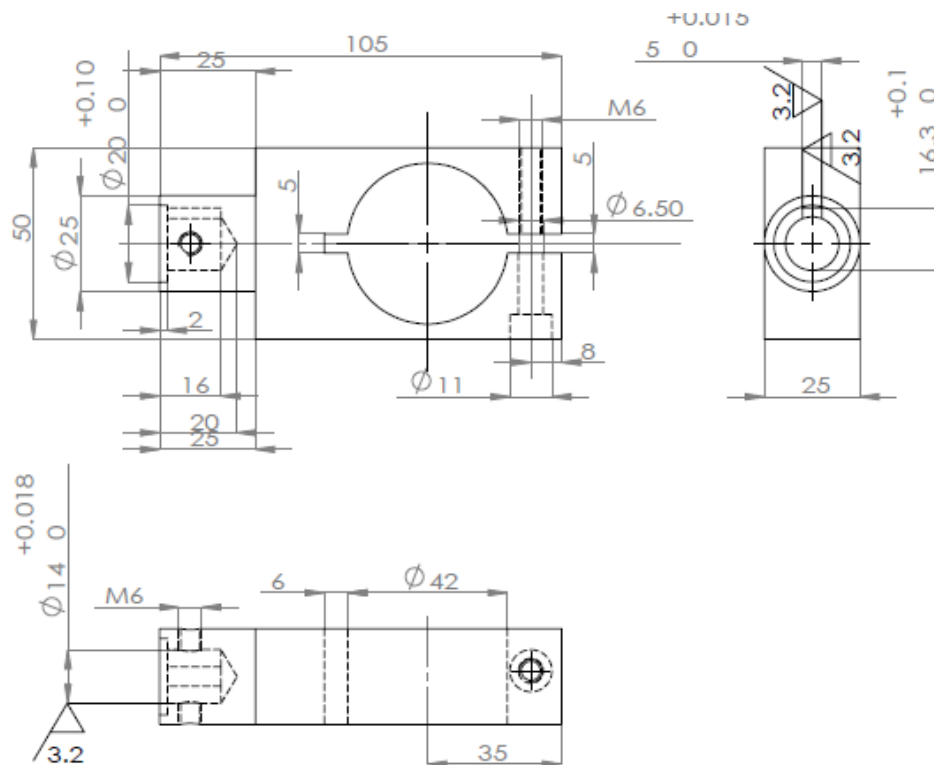


4.2、 Fillet oscillating unit is composed of stepper motor、 high precision reducer 、 torch holder.



**Fillet oscillating unit mounting dimensional drawing**





## 5、 Operating Instructions:

5.1、 Turn on the power switch, six LED windows display on the front panel, left five shows 5 data: left delay, the center delay, right delay ,amplitude of swing and swing speed, middle window displays the current number of working groups. This swing controller was produced about 00 to 15 of 16 groups operating parameters are the same ,as long as the user changes any of the five windows left content, which are then stored in the current number of working groups and adopted after the end of the current cycle, the next boot, simply select the number of the working group, originally set the left end of the delay, the center delay, right delay ,amplitude of swing and swing speed 5 data can be displayed and applications.

5.2、 To change the left side five LED window contents, press the left and right button next to window,(in the process of stopping and running both can be adjusted); To change the middle number of the working group LED window contents, just press left and right below the window button (in the process of stopping and running can be adjusted).

5.3、 In the bottom of the power switch, there are two "centering" button to adjust the swing slider (torch) central location (in the stop and can be adjusted during operation), each time you press the button, the slider moves 0.5mm.

5.4、 After all parameters have been set, press the "Start" button, HT-BD entered the working state, press the "Stop" button to stop working.

**Special attention : Press "Stop", the motor will stop after back to the center position**

If you need an emergency stop at a certain position, turn off the power switch.

### TECHNICAL PARAMETERS

5.1、 Overall dimensions: : 280mm×150mm×320mm

5.2、 Power supply: ~220V±10%, 50Hz

5.3、 Dwell time at left、 center、 right: 0.1 ~ 5sec

5.4、 Pause time setting accuracy: 0.1sec

5.5、 Oscillating stroke setting range: 0 ~ 120mm

5.6、 Oscillating stroke setting accuracy: 0.2mm

5.7、 Oscillating speed setting range: 1.0 ~50mm /sec

5.8、 Oscillating speed setting accuracy: 0.1mm /sec

5.9、 Linear oscillating slider loading capacity: 25kg、 50kg

### MAINTENANCE OF EQUIPMENT

No.	Failure phenomenon	Failure cause	Solution method
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1	Does not swing after starting power	<ol style="list-style-type: none"><li>1、 Incorrect cable connection.</li><li>2、 Without 220v power supply</li><li>3、 Stepper motor is damaged.</li><li>4、 Slider or reducer is damaged</li><li>5、 Stepper motor drive is damaged.</li><li>6、 Motherboard is damaged</li></ol>	<ol style="list-style-type: none"><li>1、 Reconnect</li><li>2、 Check and replace</li><li>3、 Check and replace</li><li>4、 Check and replace</li><li>5、 Check and replace</li><li>6、 Check and replace</li></ol>
2	Oscillating unit is noisy	<ol style="list-style-type: none"><li>1、 Stepper motor is damaged</li><li>2、 Slider or reducer is damaged</li></ol>	<ol style="list-style-type: none"><li>1、 Check and replace</li><li>2、 Check and replace</li></ol>
3	Display window can not be set	<ol style="list-style-type: none"><li>1、 Motherboard is damaged</li></ol>	<ol style="list-style-type: none"><li>1、 Check and replace</li></ol>