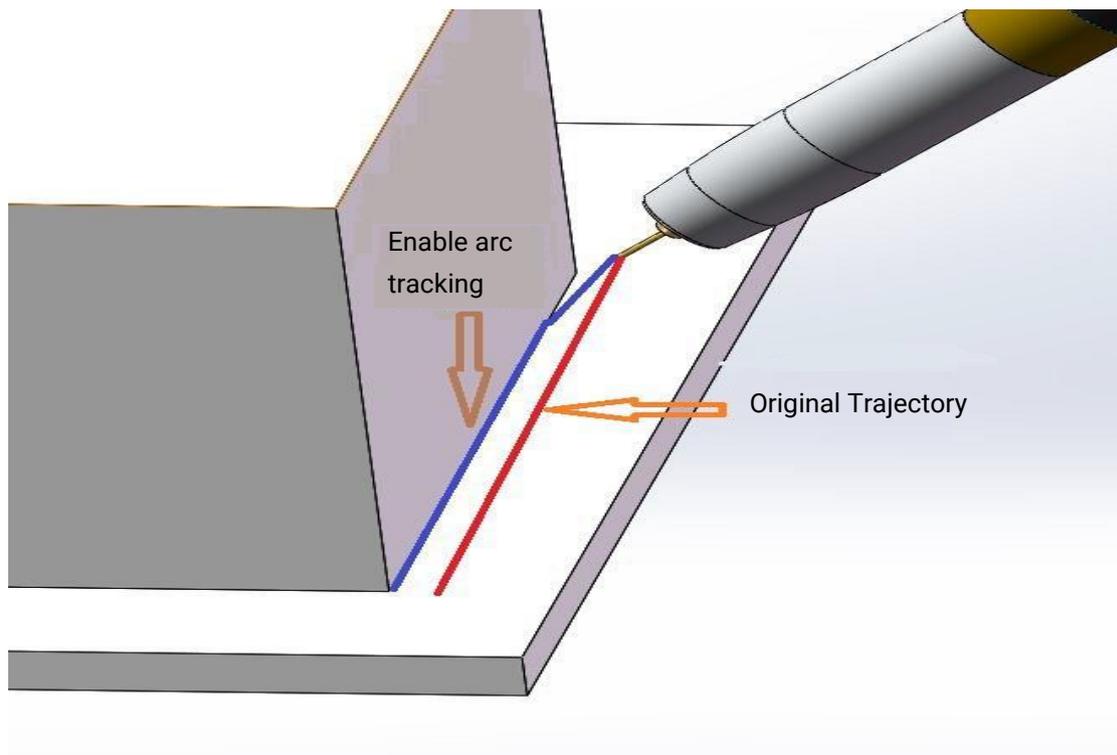


# ARC Track Manual

## 1. Welding Arc Track

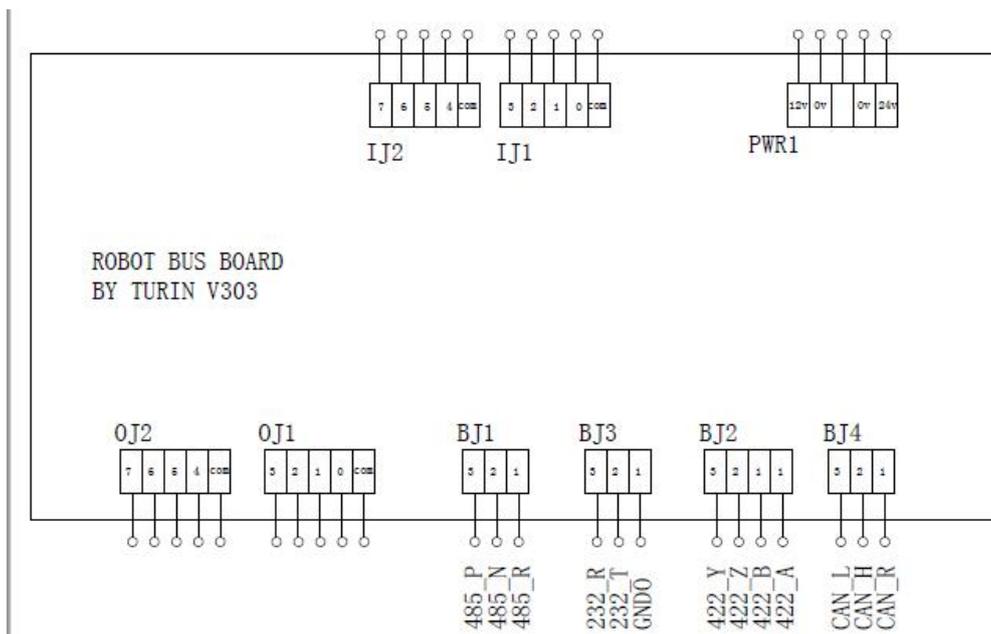
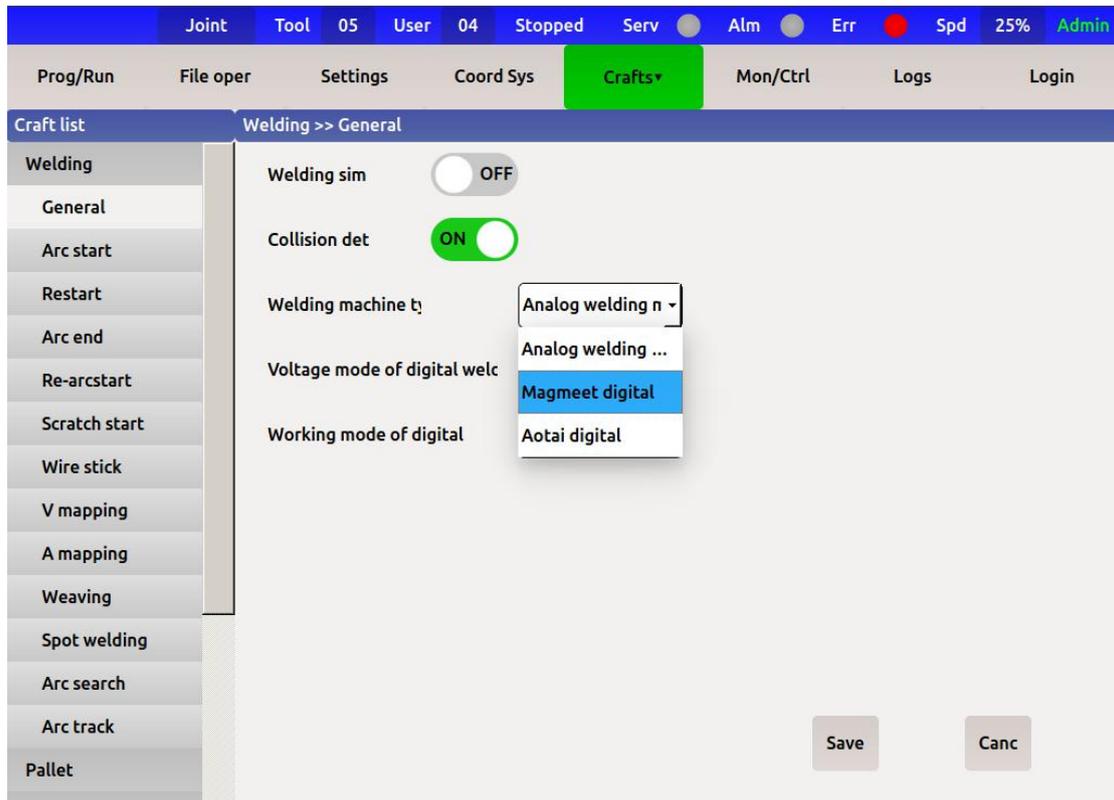
Through feedback changing value of monitor welding process to modify welding trace automatically.



## 2. Welding Arc Track Configuration Settings

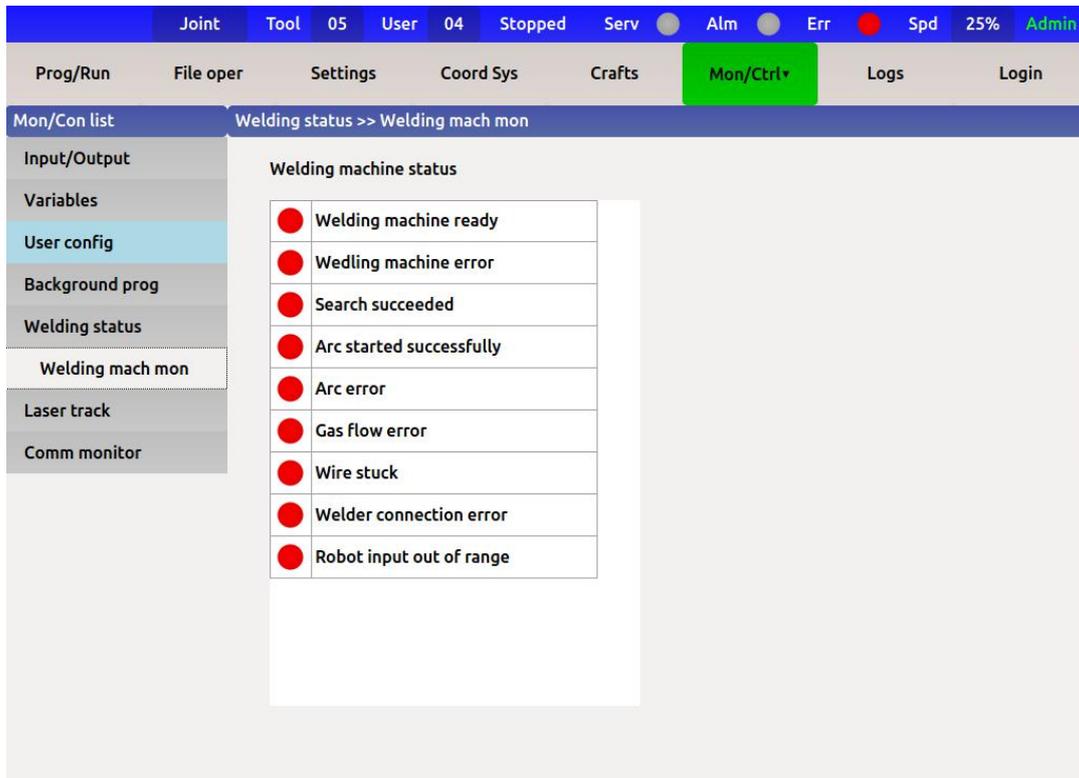
### 2.1 Communication Settings

As shown in the following figure (take Megmeet as example): arc tracking function should be used with Megmeet digital welding machine. The communication protocol is CanOpen, the corresponding welding machine parameters is : FA9→EST wiring as following figure: BJ4→CAN\_L and CAN\_H correspond to the communication line of the welder.



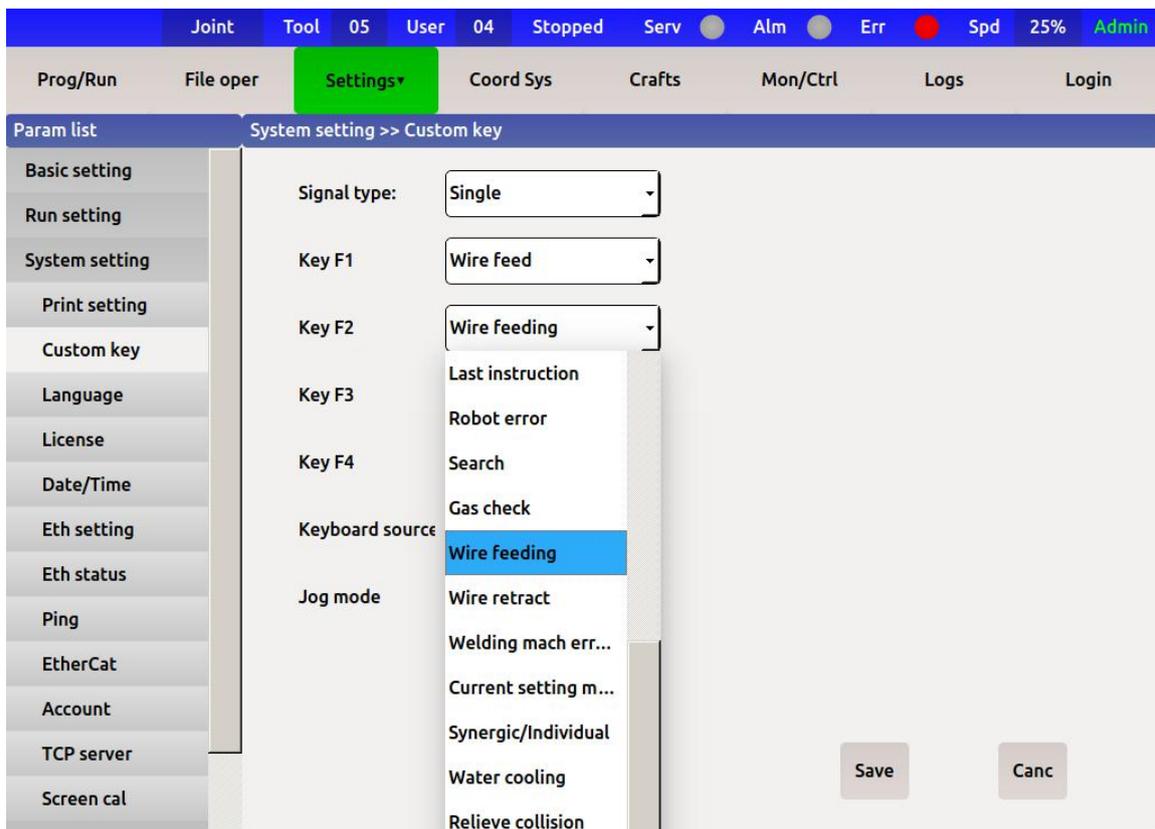
## 2.2 Condition monitoring

When the welding machine is connected to the communication board successfully, the indicator light right of "welding machine ready" in the monitoring interface will turn green. In addition, you can judge by a row of instructions on the BUS board: S21 is the power lamp, which is always on with power. Signal connection success, red light goes out, communication connection failure, red light is always on. (When the communication connection fails, first check whether the BUS board 24V power supply is normal, and then check whether CAN\_L and CAN\_H are connected in reverse.)



## 2.3 Custom Key

When using a digital welder, the robot can no longer spot the welder with DO control, So you need to select the required functions in the "custom key" section. As following image



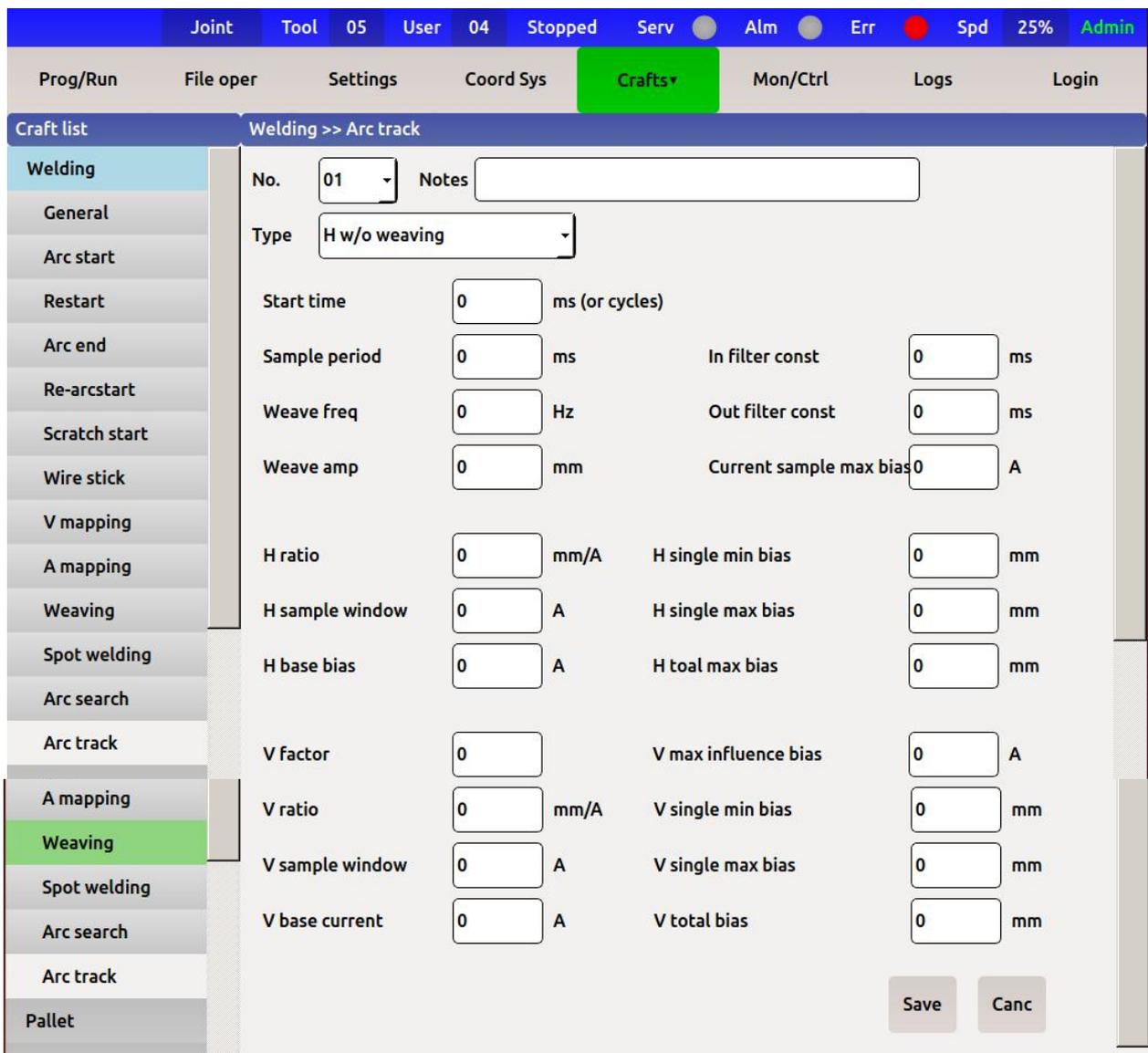
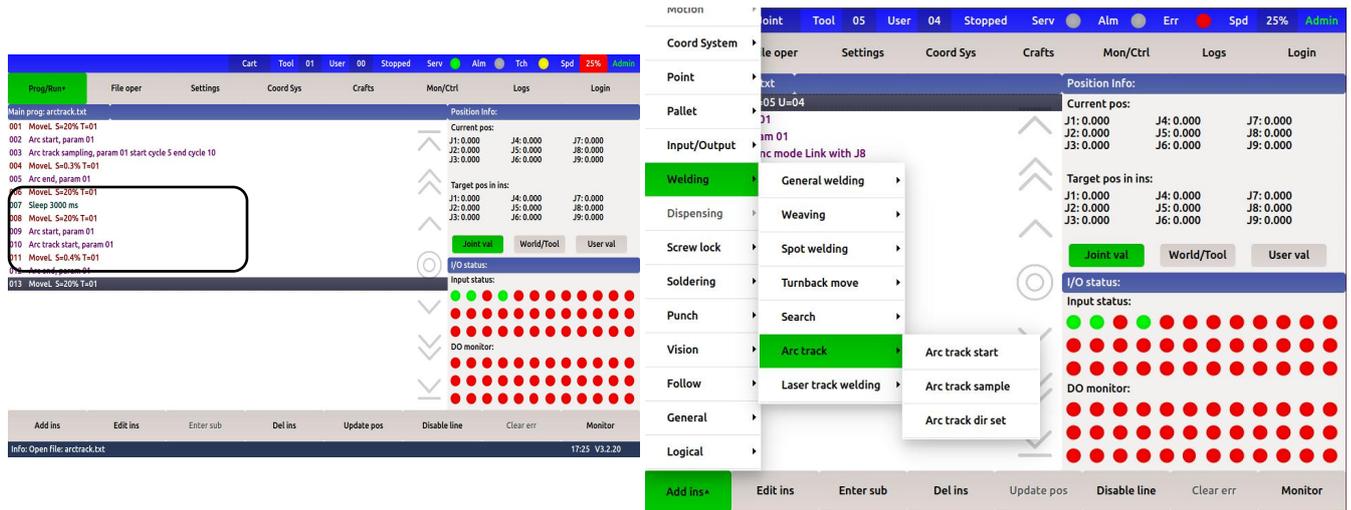
## 2.4 Setting Interface

The following figure is the setting interface of arc tracking instruction parameter. In this interface, we can save the set parameters and then adjust the parameter sequence number from the script which written by the program to achieve the arc tracking instruction function.

Joint	Tool 05	User 04	Stopped	Serv	Alm	Err	Spd 25%	Admin
Prog/Run	File oper	Settings	Coord Sys	Crafts	Mon/Ctrl	Logs	Login	
Welding >> Arc track								
No.		01	Notes					
Type		H w/o weaving						
Start time	0	ms (or cycles)						
Sample period	0	ms	In filter const	0	ms			
Weave freq	0	Hz	Out filter const	0	ms			
Weave amp	0	mm	Current sample max bias	0	A			
H ratio	0	mm/A	H single min bias	0	mm			
H sample window	0	A	H single max bias	0	mm			
H base bias	0	A	H total max bias	0	mm			
V factor	0	V max influence bias		0	A			
V ratio	0	mm/A	V single min bias	0	mm			
V sample window	0	A	V single max bias	0	mm			
V base current	0	A	V total bias	0	mm			
				Save	Canc			

## 3. Setting

**Edit Instruction:** add arc track after arc starting instruction in welding instruction, you can choose the corresponding parameters, as following image.



**Start Time:** Start tracking from this point (not have swinging arc is ms, and have swing arc is cycles), to eliminate the influence of arc initiation on the current, the parameter range is 0-10ms, generally 3ms.

**Sample Period:**The sampling period of the current, calculated after the starting time, and the parameter range is 0-50ms, generally 20ms.

**In Filter Const:** The input current is filtered to directly affect the horizontal and vertical sampling reference current. If the horizontal deviation is too large or the vertical sampling current deviates too much from the given value, the input filtering constant can be increased. The parameter range is 0-10ms, generally 5ms.

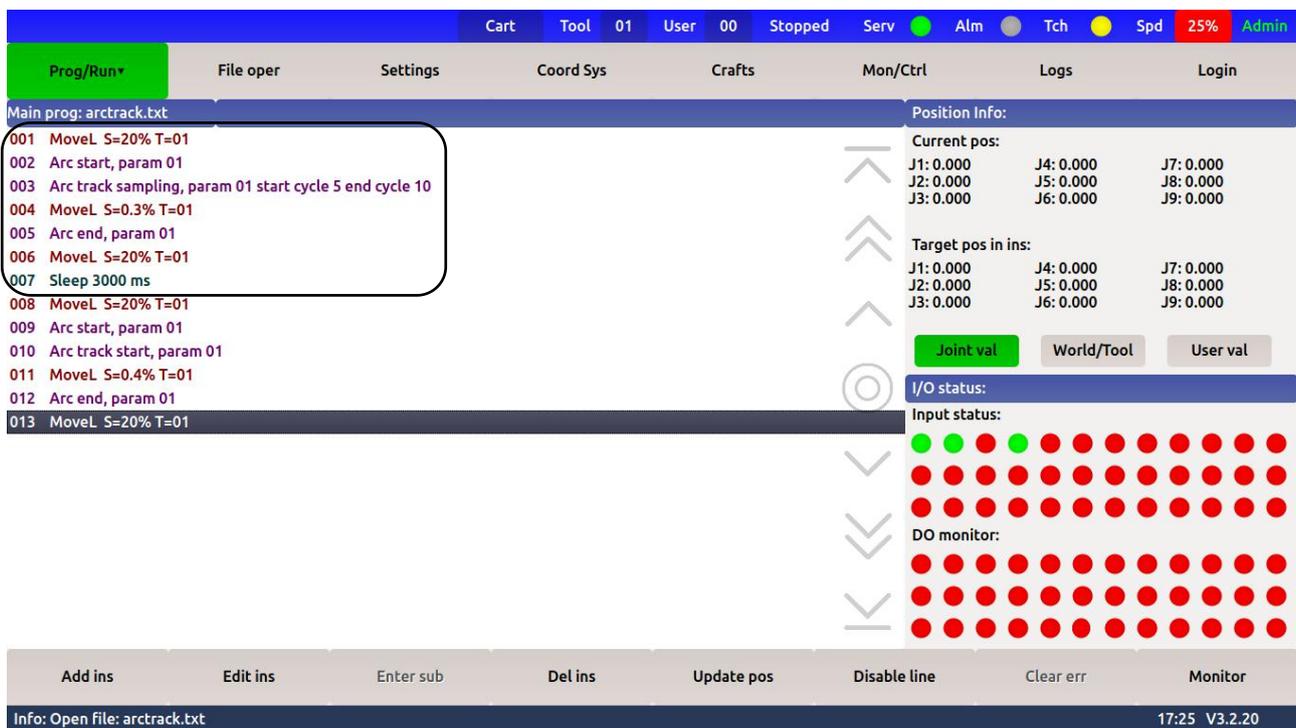
**Out Filter Cosnt:** Filter the output tracking amplitude, the parameter range is 0-10ms, generally take 5ms.

**Current Sample Max Bias:** every time sampling the current, if exceeds this value then modify the value according to this value. The parameter range is 0-20A, generally 10A.

★ **H Ratio:** The larger the K coefficient, the greater the adjustment range. Improper setting will lead to welding into a curve, the parameter range is 0-5mm/A, generally 0.8mm /A.

**H Sample Widow:** The current change below the window is considered to be 0, make a dead zone, do not sample, filter small current fluctuations, parameter range 0-1A, generally 0.05A.

**H Base Bias:**Deviations from normal welding are recorded here to compare deviations. The reference deviation is obtained by sampling. When welding fillet welds, the more symmetrical the pendulum arc is, the closer the reference deviation is to zero amperes. Using arc tracking sampling instruction, two data of horizontal sampling reference deviation and vertical sampling reference deviation can be obtained. Sampling as following image:



**H Single Min Bias:**Above this value will be revised, for example, the compensation is 2mm if the value is calculated to be 3mm, and the value is 1mm. If the value is calculated to be 0.8mm, the compensation will not be made. The parameter range is 0-5mm, and generally 1mm

★ **H Single Max Bias:**Any deviation above this value will be compensated by this maximum deviation. Improper setting will lead to welding into a curve, parameter range 0-5mm, generally take 0.5 mm.

**H Total Max Bias:**The maximum deviation value that can be corrected, the maximum deviation around the given value, zero at the starting point, the parameter range 0-50mm, generally take 20mm.

★ **V Ratio:**The larger the K coefficient is, the larger the adjustment range is, the improper setting will lead to welding into a curve, dry elongation is too long or too short will bump welding torch, the parameter range is 0-5mm/A, generally 0.8mm /A.

**V Sample Window:**The current change below the window is considered to be 0, make a dead zone, do not

sample, filter small current fluctuations, parameter range 0-1A, generally 0.05A.

**V Base Current:** The current value is recorded during normal welding and the reference deviation is obtained by sampling.

**V Single Min Bias:** Above this value will be revised, for example, the compensation is 2mm if the value is calculated to be 3mm, and the value is 1mm. If the value is calculated to be 0.8mm, the compensation will not be made. The parameter range is 0-5mm, and generally 1mm.

★ **V Single Max Bias:** Any deviation above this value will be compensated by this maximum deviation. Improper setting will lead to welding into a curve, dry elongation is too long or too short will bump welding torch, parameter range 0-5mm, generally take 0.5 mm.

**V Total Bias:** The maximum deviation value that can be corrected, the maximum deviation around the given value, zero at the starting point, the parameter range of 0-50mm, generally take 20mm.

**V Factor:** When both horizontal and vertical compensation is needed, the vertical influence factor can correct the excessive vertical compensation, which is generally 0.

**V Max Influence Bias:** When both horizontal and vertical compensation is needed, the vertical influence factor is modified in a small range from this deviation, which is generally 0.