



TYPICAL

YSC-8331

USER MANUAL

XI'AN TYPICAL INDUSTRIES CO.,LTD.

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1. Notice

YSC-8331 is used in system of industry sewing machine. For perfect operation and safety, installation and operation must be supervised by professional.

1.1 Work environment

- ▲ Please use 220V AC in $\pm 10\%$ ranges.
- ▲ To avoid the false operate, please keep the product away from the high electromagnetic interference.
- ▲ Please operate in the area which temperature is $5^{\circ}\text{C}\sim 45^{\circ}\text{C}$.
- ▲ Please operate in the area which humidity is 80% or less.
- ▲ Please keep the product away from the flammability and exploder.

1.2 Notice of installation

- ▲ The control box should be installed correctly follow the instruction in this manual.
- ▲ Turn off the power and unplug the cord before installation.
- ▲ The wire must not set to be near the wheel and other movable parts.
- ▲ To avoid the static interference and current leakage, all grounding must be done.

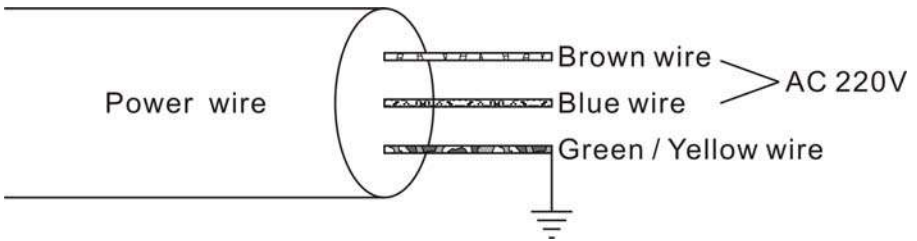
1.3 Notice of safety

- ▲ Turn off the power before maintenance and repairs or raising the machine arms, or changing needle, or threading needle.
- ▲ Please don't open the box except the professional.
- ▲ When turn on the machine in the first time, use low speed to operate and check the correct rotation direction.
- ▲ During machine operation, don't touch any moving parts.
- ▲ All moving parts must use the protective device to avoid the body contact and objects insertion.
- ▲ When there is water or other liquid, or caustic material on box or motor, you must stop operation and turn off the power.
- ▲ All connector shouldn't be plug and unplug when power on.
- ▲ The connector should be plug and unplug in the correct method.

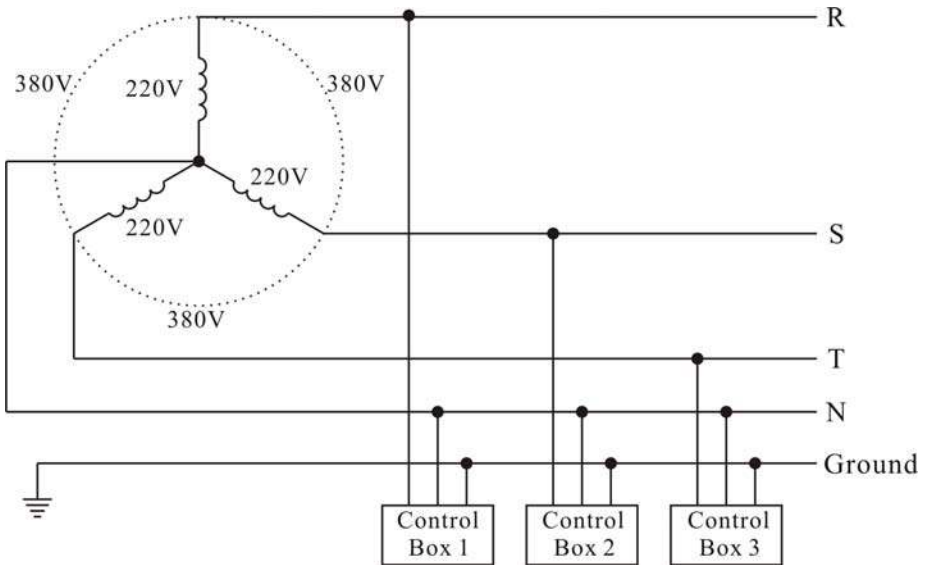
2. Power Connection

2.1 Single phase 220V power connection

Ground wire (green & yellow) must be grounding.



2.2 Three phase 380V power connection



3. Connector Diagram

220V AC

AC POWER	
1	Null Line
2	Live Line
3	Ground

(M)

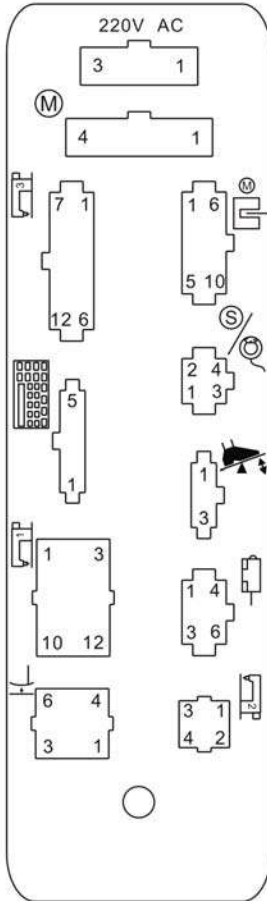
MOTOR	
1	A Phase
2	GROUND
3	B Phase
4	C Phase

(M)

ENCODER	
1	--
2	QEB
3	W Hall
4	U Hall
5	+5V
6	UP
7	QEA
8	V Hall
9	GND
10	--

(M)

IDENTIFIER	
1	SDA
2	--
3	SCL
4	--
5	GND
6	+5V



(S)

SPEED CONTROLLER	
1	+5V
2	GND
3	OUTPUT

(S)

SAFETY SW.	
1	--
2	OV
3	--
4	SAFETY SW.

(Q)

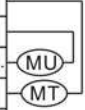
INSPECTOR	
1	Up
2	GND
3	+5V
4	Down

(M)

OPERATION BOX	
1	+5V
2	CANH
3	--
4	CANL
5	GND

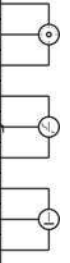
(M)

FOOT LIFTER	
1	+31V
2	+31V
3	Unfasten SOL.
4	Foot SOL.
5	--
6	GROUND



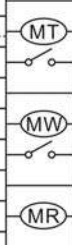
(M)

SEWING MACHINE 3	
1	+5V
2	Stitch length
3	GND
4	+5V
5	Thread broken
6	GND
7	+5V
8	Cloth
9	GND



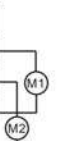
(M)

SEWING MACHINE 1	
1	LED
2	+5V
3	GROUND
4	+31V
5	Trimmer SOL.
6	COR. SW.
7	+31V
8	Wiper SOL.
9	REV. SW.
10	+31V
11	REV. SOL.
12	GND



(M)

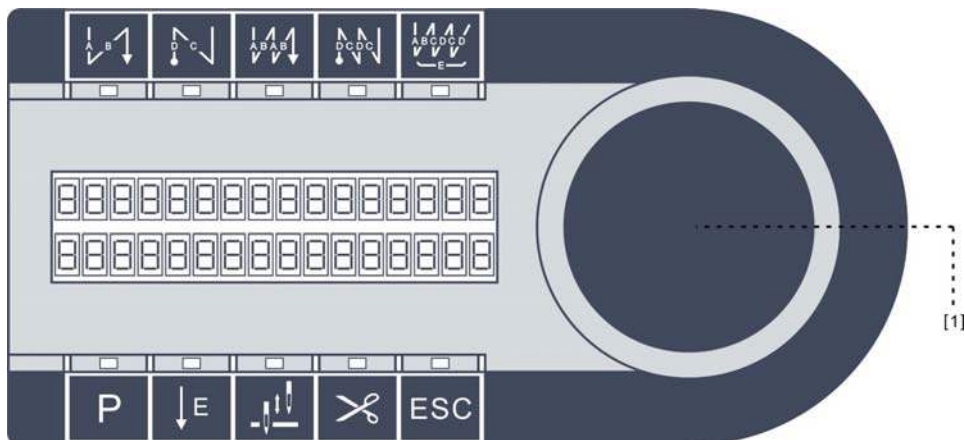
SEWING MACHINE 2	
1	Additional SOL. 1
2	Additional SOL. 2
3	+31V
4	+31V















Attention: (S) for direct-driven is safety SW., and for belt-driven is Synchronizer.

4. Function of Operation Box

P107 operation box diagram

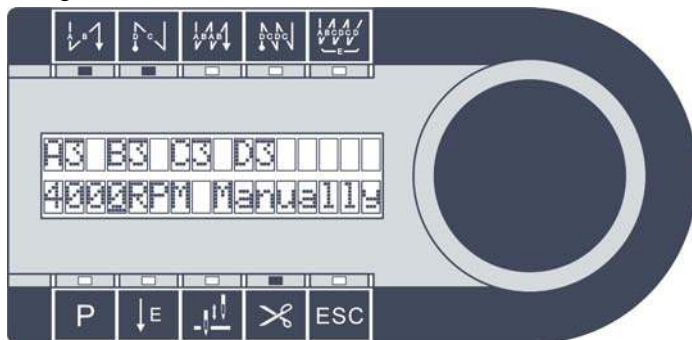











Function	Key	Operation
Start Tacking Selection		Double start tacking, A is the stitches of forth sewing; B is the stitches of back sewing. They are both in range 1~15.
		Single start tacking, A is the stitches of forth sewing; B is the stitches of back sewing. They are both in range 1~15.
End Tacking Selection		Double end tacking, C is the stitches of back sewing; D is the stitches of forth sewing. They are both in range 1~15.
		Single end tacking, C is the stitches of back sewing; D is the stitches of forth sewing. They are both in range 1~15.
Bar Tacking Sewing		<p>▲ Once the pedal is stepped forward, all the seams of bar tacking, A, B, C, D sections will be completed with E times, and the trimming will be done automatically.</p> <p>▲ The pedal must be returned to balance for next sewing.</p>

Program Sewing		<p>▲ Once the pedal is stepped forward, F, G stitches will be completed with E times.</p> <p>▲ Constant-Stitch Sewing will perform the number of segments and times as setting, when the stitches are zero, machine will stop immediately.</p>
Free Sewing	either  or  enable	<p>▲ As the pedal is stepped forward, the start tacking(if selected) will be done automatically, then machine will start normal sewing. Once the pedal returned to balance, machine will stop immediately.</p> <p>▲ As the pedal stepped backward, the end tacking, trimming and wiping(if selected) will be done automatically.</p>
Needle Up / Needle Down		Select the stop position of needle.
Trimming Enable		Enable or disable the trimming.
Parameter Function		Enter or exit parameter function interface.
Escape Function		Cancel the last operation.
Setup Function	[1] Push wheel button	Confirm and save current value of parameter.
Increase	[1] Turning wheel button clockwise	Value increase.
Decrease	[1] Turning wheel button anticlockwise	Value decrease.

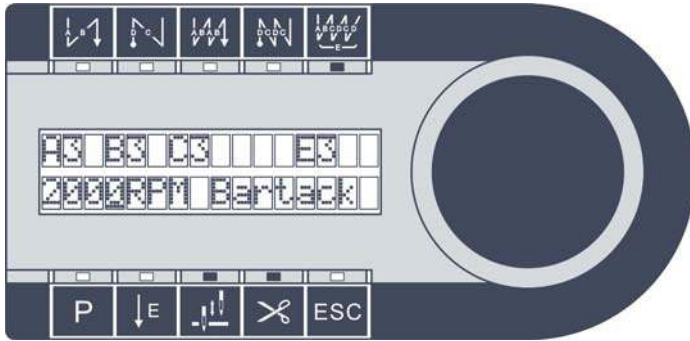
5. Operation of the Normal Function




5.1 Free sewing mode



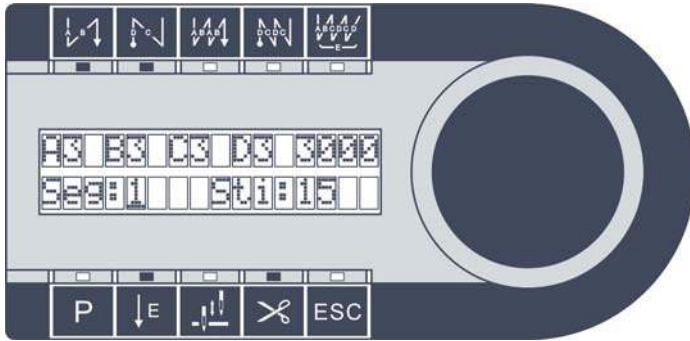
- If either  or  is enable, then the mode is free sewing.
- Use  or  to enable or disable the start tacking.
- Use  or  to enable or disable the end tacking.
- Turning wheel button clockwise or anticlockwise to move the cursor, push wheel button to twinkle the parameter want to modify, then turning wheel button clockwise or anticlockwise to change parameter, push wheel button to save the change, or push  to cancel change.
-  can be used in this mode to set the needle position after stop.
-  can be used in this mode to enable or disable the trimming function.

5.2 Bar tacking mode



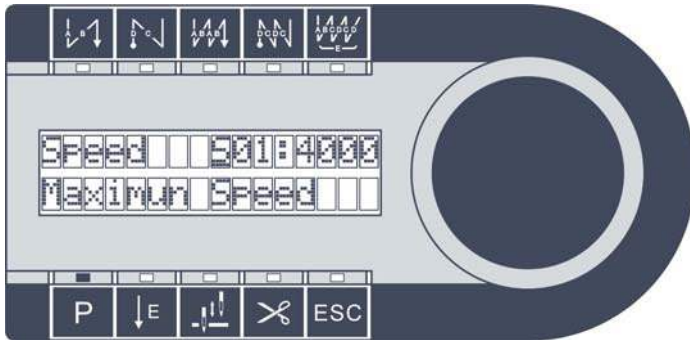
- If  is enable, then the mode is bar tacking.
- Turning wheel button clockwise or anticlockwise to move the cursor, push wheel button to twinkle the parameter want to modify, then turning wheel button clockwise or anticlockwise to change parameter, push wheel button to save the change, or push  to cancel change.
-  can be used in this mode to enable or disable the trimming function.



5.3 Program mode



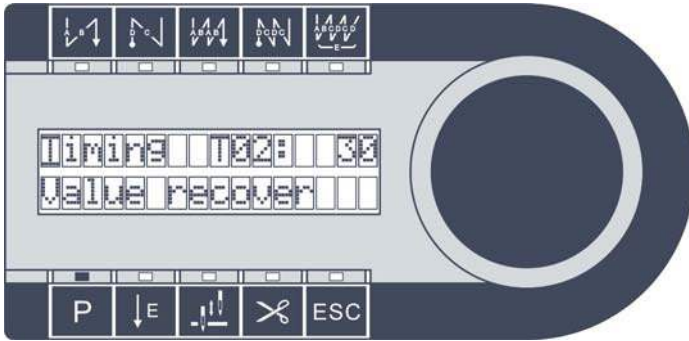
- If **↓E** is enable, then the mode is program mode.
- Change “Seg” parameter to select the segment which wants to setup.
- Each segment can use **↙↘** or **↗↘** to enable or disable the start tacking.
- Each segment can use **↙↘** or **↗↘** to enable or disable the end tacking.
- Each segment can change “Sti” parameter to set the stitch.
- Each segment can use **↕** to set the needle position after stop.
- Each segment can use **✂** to enable or disable the trimming function.
- Turning wheel button clockwise or anticlockwise to move the cursor, push wheel button to twinkle the parameter want to modify, then turning wheel button clockwise or anticlockwise to change parameter, push wheel button to save the change, or push **ESC** to cancel change.

5.4 Parameter setup



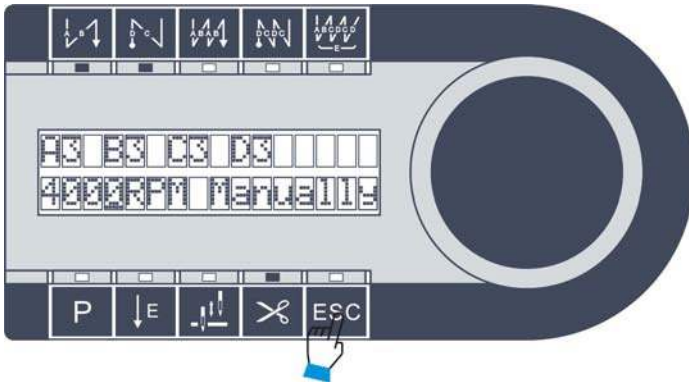
- Press **P** can enter the parameter menu, press it again will back to sewing mode interface.
- See the picture above, the current cursor is under “S”, which indicates the parameter type, push wheel button to twinkle the “S”, then can change the type you want, total 9 types can be selected:
 - S → speed parameter
 - T → timing parameter
 - A → enable parameter
 - D → degree parameter
 - O → special parameter
 - I → important parameter
 - N → network parameter
 - U → USB parameter
 - X → admin parameter
- After the type is the parameter index, the cursor can be move under it to change index, each parameter has a simple description in the second line.
- After the parameter index is the parameter’s value, the cursor can be move under it for changing.
- When changing the parameter’s value, to speed parameter, the step is 25, for other parameter is 1. For fast adjustment, press  and turning wheel button could add or sub value by 100; press  and turning wheel button could add or sub value by 10.

5.5 Parameter recover



- When in parameter menu, if cursor move to the first word, push wheel button can enter parameter recover function.
- Two choices can be made, recover to “Last value” or “Default value”. After select, push wheel button will display “Are you sure?”, push wheel button again to confirm, push **ESC** will back to last step.

5.6 Adjust LED lightness



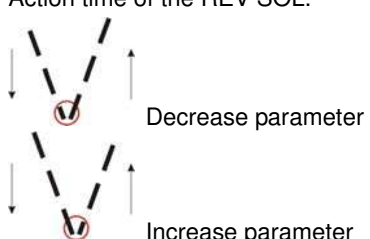
- When in sewing mode interface, press **ESC** and turning wheel button could adjust the LED lightness, clockwise to increase and anticlockwise to decrease.

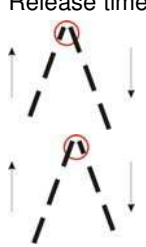
6. General Parameter Table (part)

6.1 Speed parameter

SN	Name	Range	Default	Description
S01	Max speed	500~5000 (s/m)	4000	Maximum speed.
S02	Min speed	150~500 (s/m)	200	Minimum speed.
S03	Speed of start tacking	500~2500 (s/m)	2000	Speed of start tacking.
S04	Speed of end tacking	500~2500 (s/m)	2000	Speed of end tacking.
S05	Speed of bar tacking sewing	500~2500 (s/m)	2000	Speed of bar tacking sewing.
S06	Speed of C-S sewing	500~4500 (s/m)	3000	Speed of constant-stitch sewing.
S07	Trimming speed	150~300 (s/m)	200	Speed of trimming.
S08	Slow sewing speed	200~500 (s/m)	400	Slow sewing speed when start.

6.2 Timing parameter

SN	Name	Range	Default	Description
T01	RVS action time	1~200 (ms)	40	<p>Action time of the REV SOL.</p> 

T02	RVS release time	1~200 (ms)	30	<p>Release time of the REV SOL.</p> 
T03	Delay time of wiper	1~200 (ms)	20	Timing before the wiper solenoid act.
T04	Action time of wiper	1~200 (ms)	30	Timing for the wiper solenoid action.
T05	Delay time of foot lifter	1~500 (ms)	10	Timing before the foot lifter solenoid is act.
T06	Release time of foot lifter	1~500 (ms)	50	Timing before the foot lifter solenoid is released.
T07	Time of foot lifter 100% output	1~999 (ms)	500	Timing of the foot lifter solenoid is act with whole output.
T08	Time of RVS 100% output	1~999 (ms)	150	Timing of the reverse solenoid is act with whole output.
T10	Time of remove shake	1~500 (ms)	10	The speed controller will be greater sensitive when the value is smaller.

6.3 Enable parameter

SN	Name	Range	Default	Description
A01	Up position	ON~OFF	OFF	ON: the stop position is up OFF: the stop position is down
A02	Automatically sewing	ON~OFF	ON	Valid only in constant-stitch sewing, when set to "ON", enable the automatic sewing.
A03	mode of stitch correction	ON~OFF	OFF	ON: continual OFF: half needle
A04	Stitch correction with single button	ON~OFF	OFF	For free sewing, if there is single switch on machine arms, when set to "OFF" the switch is reverse switch always. When

				set to “ON”, the switch is reverse switch at sewing and is stitch correction switch at stop.
A05	Stitch correction with double button	ON~OFF	ON	When set to “ON”, enable the reverse and stitch correction switch both are valid. When set to “OFF”, disable the double key be valid at the same time, and in this mode, the function of the single switch is determined by A04 .
A06	Trimming (for free sewing mode)	ON~OFF	ON	When it is “ON”, enable the trimming of free sewing mode.
A07	Wiping	ON~OFF	ON	When it is “ON”, enable the wiping. When A06 is “OFF”, A07 is invalid.
A08	Foot lift	ON~OFF	ON	When it is “ON”, enable foot lift. Whether the foot SOL to be connected is detected during power on automatically.
A09	clamp	ON~OFF	ON	“ON” to enable clamp, only for GC6280.
A10	Unfasten	ON~OFF	OFF	“ON” to enable unfasten SOL, only for GT655D.
A11	Trimming (for bar tacking mode)	ON~OFF	ON	When it is “ON”, enable the trimming of bar tacking mode.
A12	Screen saver	ON~OFF	ON	“ON” to enable screen saver function.
A13	Puller	ON~OFF	ON	“ON” to enable puller function.
A14	Trimming protection	ON~OFF	ON	When it is “ON”, the pedal must be back to the balance position to do next operation after trimming, “OFF” to be no required.
A15	Foot lift after trimming	ON~OFF	OFF	When A08 is “ON”, if A15 is set to “ON”, the foot lifter will lift automatically after trimming.
A16	The first segment keep on with the	ON~OFF	ON	It is valid only for constant-stitch sewing. If enable automatic sewing mode and set the start tacking, the next segment of

	start tacking of C-S sewing			constant-stitch sewing will do automatically after the start tacking is finished when it is "ON". When it is "OFF" or disable the automatic sewing mode, machine will stop automatically after the start tacking is finished.
A17	The end tacking keep on with the last segment of C-S sewing	ON~OFF	ON	It is valid only for constant-stitch sewing. If enable automatic sewing mode, the end tacking and trimming will do automatically after the last segment of constant-stitch sewing is finished when it is "ON". When it is "OFF" or disable the automatic sewing mode, machine will stop automatically after the last segment of constant-stitch sewing is finished. The end tacking and trimming will do until step forward the pedal again.
A18	Move to up position after power on	ON~OFF	OFF	When it is "ON", the machine will move to up position and stop automatically as power on.
A19	Foot lifer acting in foot lift position	ON~OFF	ON	When the pedal is half back toe down, if it is "ON", the position is foot lift. If it is "OFF", the position is to be balance.
A20	Trimmer acting in foot lift position	ON~OFF	OFF	When it is "ON", the trimming will at the foot lifter position.
A21	Soft start	ON~OFF	OFF	When it is "ON", it will do a soft start after trimming.

6.4 Degree parameter

SN	Name	Range	Default	Descriptions
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D01	Up lever	0~359 (°)	60	Up lever degree.
D02	Down lever	0~359 (°)	215	Needle bar down degree.
D03	Trimmer act	0~359 (°)	250	Trimmer act degree.
D04	Trimmer release	0~359 (°)	0	Trimmer release degree.
D05	Reverse act	0~359 (°)	300	Reverse SOL. act degree.
D06	Reverse release	0~359 (°)	300	Reverse SOL. act release degree.
D07	Clamp act	0~359 (°)	180	Clamp act degree.
D08	Clamp release	0~359 (°)	270	Clamp release degree.
D09	Puller start	0~359 (°)	0	Puller starts degree per round.
D10	Puller end	0~359 (°)	0	Puller stops degree per round.

6.5 Special parameter

SN	Name	Range	Default	Descriptions
O01	Stitches of slow sewing at start	0~10 (needle)	3	The stitches of slow sewing at start when trimming is finished. The speed of slow sewing is set in S08 .
O03	Machine type	1~30	22	According to the machine type.
O05	Duty of foot lifter output	10~99 (%)	50	The duty cycle of PWM for signal of foot lifter solenoid. The power will be greater if this value is bigger, at the same time, the heat is more.
O06	Foot lifter auto release	ON~OFF	ON	When it is "ON", the foot lifter solenoid will be released automatically after the time desired.

O07	Foot lifter release time	5~30(s)	20	When O06 is “ON”, the Foot solenoid will be released automatically after the time desired.
O09	Duty of RVS output	10~99 (%)	50	The duty cycle of PWM for signal of reverse solenoid. The power will be greater if this value is bigger, at the same time, the heat is more.
O10	RVS auto release	ON~OFF	ON	When it is “ON”, the reverse solenoid will be released automatically after the time desired.
O11	RVS release time	5~30(s)	10	When O10 is “ON”, the reverse solenoid will be released automatically after the time desired.
O12	Tacking speed limitation with 1 stitch	200~2500 (s/m)	1300	If the stitch of start tacking, end tacking or bar tacking contains 1 stitch, the tacking speed will never exceed this parameter.
O13	Tacking speed limitation with 2 stitches	200~2500 (s/m)	1800	If the stitch of start tacking, end tacking or bar tacking contains 2 stitches, the tacking speed will never exceed this parameter.
O14	Tacking speed limitation with 3 stitches	200~2500 (s/m)	2000	If the stitch of start tacking, end tacking or bar tacking contains 3 stitches, the tacking speed will never exceed this parameter.
O15	Parameter encrypt	ON~OFF	OFF	See 7.9.
O16	System speed limitation	200~5000 (s/m)	4500	Every speed will never exceed this parameter.
O17	Initialization of parameters	ON~OFF	OFF	When it is “ON”, all parameters will initial to default value during next power on.
O18	Safety SW. mode	0~1	1	0: Normal close, 1: Normal open.
O19	Identifier enable	ON~OFF	ON	“ON” to enable identifier function.

O20	Safety SW. enable	ON~OFF	ON	“ON” to enable the safety switch function.
O21	Motor driven mode	0~1	1	0: belt driven; 1: direct driven.
O22	Motor rotate direction	0~1	1	0: clockwise; 1: anticlockwise.
O23	Running time of aging test	1~60(s)	5	The running time of aging test.
O24	Idle time of aging test	1~60(s)	5	The idle time of aging test.
O25	Total time of aging test	1~255 (h)	1	The total time of aging test. It will be stopped when reached the time.
O26	Aging test enable	ON~OFF	OFF	“ON” to active the aging test.
O27	User's password	0~9999	1234	User can set password by this parameter.

6.6 Important parameter

SN	Name	Range	Default	Descriptions
I01	Acceleration time	100~500 (ms)	140	The time from 0 to 4500 s/m.
I02	Deceleration time	100~500 (ms)	140	The time from 4500 s/m to 0.
I03	Motor electric counter	0~1440	321	Correction counters of motor electric angle.
I04	Motor scale counter	0~1440	720	Scale from motor to machine head.
I07	Max voltage of pedal output	250~3300 (mV)	2800	
I08	High speed position's voltage of pedal output	250~3300 (mV)	2200	
I09	Low speed position's voltage of pedal output	250~3300 (mV)	1860	

I10	Balance position's voltage of pedal output	250~3300 (mV)	1100	
I11	Foot lift position's voltage of pedal output	250~3300 (mV)	705	
I12	Trimming position's voltage of pedal output	250~3300 (mV)	302	
I13	Schmitt voltage of pedal output	0~500 (mV)	100	
I14	Kp of velocity loop regulator	0~9999	4000	
I15	Kp gain scale of velocity loop regulator	0~99	10	
I16	Ki of velocity loop regulator	0~9999	3000	
I17	Ki gain scale of velocity loop regulator	0~99	17	
I18	velocity loop output	1~20(A)	8	High speed output limitation.
I19	velocity loop output	1~20(A)	13	Low speed output limitation.
I32	Motor encode type	1~2	2	1: 360 lines; 2: 180 lines.
I37	Solenoid voltage brake top limitation	200~500 (0.1V)	360	
I38	Solenoid voltage brake bottom limitation	200~500 (0.1V)	350	
I44	Debug data type	0~30	0	Data transmit by SCI interface.
I45	Stop degree	0~359 (°)	30	
I46	Stop entrance velocity	100~500 (s/m)	200	

I47	Stop terminal velocity	20~100 (s/m)	80	
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6.7 Network parameter

6.8 USB parameter

6.9 Admin parameter

SN	Name	Range	Default	Descriptions
X01	Speed parameter lock enable	ON~OFF	OFF	When it is "ON", the speed parameters can't be modified.
X02	Time parameter lock enable	ON~OFF	OFF	When it is "ON", the time parameters can't be modified.
X03	Enable parameter lock enable	ON~OFF	OFF	When it is "ON", the enable parameters can't be modified.
X04	Degree parameter lock enable	ON~OFF	OFF	When it is "ON", the degree parameters can't be modified.
X05	Special parameter lock enable	ON~OFF	OFF	When it is "ON", the special parameters can't be modified.
X06	Important parameter lock enable	ON~OFF	OFF	When it is "ON", the important parameters can't be modified.
X07	Network parameter lock enable	ON~OFF	OFF	When it is "ON", the network parameters can't be modified.
X08	USB parameter lock enable	ON~OFF	OFF	When it is "ON", the USB parameters can't be modified.

7. Measurement of Error

Error code	Causation	Measurement
01	AC voltage is too high	Check the AC power.
02	AC voltage is too low	Check the AC power.
03	Bus voltage is too high	Check the AC power.
04	Bus voltage is too low	Check the AC power.

06	Bus over current	Check the load.
08	Load is too heavy	Check the load.
10	Position check error	Check synchronizer, see 8.2.
11	Encoder error	Check encoder, see 8.4.
13	Machine type error	Check identifier, see 8.6.
14	Trimmer SOL. error	Check SOL. whether direct short.
15	REV SOL. error	Check SOL. whether direct short.
16	Wiper SOL. error	Check SOL. whether direct short.
17	Foot lifter SOL. error	Check SOL. whether direct short.

8. Signal Checking

Press wheel button during power on, it will display “TEST” and then enter the mode of Measurement of Input Signal. Turning wheel button can change the index of signal test.

8.1 Pedal



Display of the different pedal position as below:

Display code	Descriptions
High speed	The second segment forward, pull is 02~99.
Low speed	The first segment forward, pull is 01.
Balance position	Default.
Foot position	The first segment backward.
Trimmer position	The second segment of backward.
Error position	Speed controller fault or disconnected.

8.2 Synchronizer

Turn the hand wheel by hand equably, display of up position.

8.3 Switch




Display code	Descriptions
L:	The LED lightness, can be set by  and  .
R:	The state of REV. switch.
C:	The state of COR. switch.
S:	The state of safety switch.

8.4 Motor encoder

Turn the hand wheel by hand equably, display the encode count and hall signal of motor, range is 0~7. If the fault state appeared, then display “ERRO”.

Display code	Descriptions
QEI:	The encode count of motor.
Hall:	The hall's range is 0~7, If the fault state appeared, then display E.

8.5 Solenoid

Use  and  to select solenoid, use  for test.

8.6 Identifier

Display the code of identifier and machine type.

8.7 Software ver.

8.8 Panel ver.

8.9 Other device

8.10 PCB ver.

8.11 Power voltage

Display code	Descriptions
AC:	The AC input voltage.
DC:	The DC bus voltage.

8.12 Other voltage



Display code	Descriptions
M:	The main control voltage.
Sol:	The solenoid control voltage.

8.13 Phase current

Display code	Descriptions
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A:	Phase A current sample value.
B:	Phase B current sample value.

8.14 Degree

First to setup zero point, use  or  to change degree type, turn hand wheel equably, display the current degree.

➤ Zero Index

Turn hand wheel to top dead center, and then press wheel button to set zero degree point.

➤ Up lever

Turn hand wheel to up lever, press wheel button to save current degree to up lever position. If display is equal to existent parameter, a twinkling “O” will be displayed.


The setup of other degree parameters are same with above.



- Down lever
- Trimmer Start
- Trimmer End
- Reverse Start
- Reverse End
- Clamp Start
- Clamp End
- Puller start
- Puller End

8.15 Date & Time

8.16 Fault review

The system can save the error code automatically when error occurred. Checking the history error by operation as below:

If there has fault message, press wheel button to move curser under fault index, turning wheel button to change index, total 10 fault message can be stored; press  back to the index of signal test.

use  or  can display the fault information, as below:

Display code	Descriptions
Fault code	
AC voltage	
Bus voltage	
VCC voltage	The main control voltage.
Sol. voltage	The solenoid control voltage.
Current Id	
Current Iq	
R_speed	Reference speed.
F_speed	Feedback speed.
Degree	
Date	
Time	

Add: No.1 Taibai South Road,
Xi'an, P.R.China-710068

Tel: +86-29-88279162 88279163

Fax: 029-88279161 83911111

E-mail: typical@chinatypical.com

[Http://www.chinatypical.com](http://www.chinatypical.com)

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