VIOS®

VIOS Servo Control

---Parameter List (Digital Version)

V 1.06

(Applicable to all models of VIOS machines)

2026 Edition

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1. Motor

Name	Min	Max	PV	Unit	Description
Maximum Speed	500	3000	2500	rpm	
Minimum Speed	100	300	150	rpm	
Position Speed	180	1000	180	rpm	
Acceleration	1	30	20	rpm/ms	
Deceleration	1	30	20	rpm/ms	
Rotation Direction	0	1	0	-	Direction of rotation of motor 0 = CW 1 = CCW
Transmission Ratio	1	9999	100	-	Transmission ratio = (Machine diameter/motor diameter) *100
Speed Limit DB3000	180	3000	3000	rpm	
Speed Limit DB2000	180	3000	1800	rpm	
Single Stitch Speed	180	500	180	rpm	
Manual Speed	180	3000	180	rpm	
Braking Mode	0	1	0	-	Motor brake during normal stop 0: no brake torque 1: brake continuously active when stopped
Brake Holding Current	5.0	50.0	20.0	-	Brake current = (Brake torque/motor rated torque)*100
Position loop gain	700	5500	2000	-	
Speed loop gain	3000	8000	6000	-	
Positioning Lead Angle	20	40	20	°	
External Pos Sensor	0	1	0	-	Extern pos sensor 0: disable extern pos sensor 1: enable extern pos sensor
Extra Torque Mode	0	1	0		0: disable 1: enable

2. Soft Start

Name	Min	Max	PV	Unit	Description
Speed	180	1000	400	rpm	Soft start speed
Stitch Num	1	99	1	Stitches	Number of soft start stitches

3. Sewing Foot Lift

Name	Min	Max	PV	Unit	Description
Enable	0	1	1	-	
Sewing Start Delay after Foot Lowering	0	255	80	ms	
Hold Foot Lift Delay	0	255	40	ms	
End Foot Lift Delay	0	255	50	ms	
TIME1	0	999	200	ms	Activation time of sewing foot lift Magnet in period T1
TIME1 Duty	5	100	100	%	Duty cycle in period T1
TIME2	0	60000	10000	ms	Activation time of sewing foot lift Magnet in period T2
TIME2 Duty	5	100	100	%	Duty cycle in period T2

4. Reversal

Name	Min	Max	PV	Unit	Description
Enable	0	1	1	-	Enable Reverse after end of sewing
Reversal Angle	10	180	45	°	
Reversal Start Delay	10	255	40	ms	Waiting time until reversal

5. Thread Trimming

Name	Min	Max	PV	Unit	Description
Speed	100	750	150	rpm	Thread cut speed
Thread Trimming Pedal Position	0	1	0	-	Reserved, invalid
Switch On Angle	0	359	25	°	Cut solenoid switch on angle Bottom dead center<Switch on angle<Switch off angle
Switch Off Angle	0	359	265	°	Cut solenoid switch off angle Switch on angle < Switch off angle < thread top dead center
Conduction Time	100	1000	1000	ms	Maximum working time of cut solenoid, after cut auto off.

6. Thread Tension

Name	Min	Max	PV	Unit	Description
Mode	0	3	2	-	Mode of thread tension and thread Tension reduction when sewing foot Lift is active. 0: No thread tension lift; 1: Thread tension lift in the seam; 2: Thread tension lift after thread cutting; 3: Thread tension lift in the seam And after thread cutting;
Switch On Angle	0	359	255	°	thread tension switch off angle Bottom dead center < Switch on angle < Switch off angle
Switch Off Angle	0	359	325	°	thread tension switch off angle Switch on angle < Switch off angle < thread top dead center
Release Tension during Threading	0	1	0	-	Reserved, invalid
Extra Tension during Stroke Adjustment	0	1	1	-	Open additional thread tension During quick stroke adjustment 0: NO 1: YES
Extra Tension for Start Bartack	0	1	0	-	Open additional thread tension During start bartacking 0: NO 1: YES

Name	Min	Max	PV	Unit	Description
Extra Tension for End Bartack	0	1	0	-	Open additional thread tension during end bartacking 0: NO 1: YES
Extra Tension for Bartack	0	1	0	-	Open additional thread tension during manual bartacking 0: NO 1: YES
Extra Tension during Thread Clamping	0	1	0	-	Open additional thread tension for thread clamp 0: NO 1: YES
Extra Tension during Soft Start	0	1	0	-	Open additional thread tension during soft start 0: NO 1: YES
Extra Tension during Shortened Stitch Length	0	1	0	-	Reserved, invalid
Extra Tension for Single Stitch	0	1	0	-	Reserved, invalid
Extra Tension during Manual Operation	0	1	0	-	Open additional thread tension for extern key 0: NO 1: YES
TIME1	0	999	40	ms	Activation time of thread tension Magnet in period T1
TIME1 Duty	5	100	100	%	Duty cycle in period T1
TIME2	0	60000	0	ms	Activation time of thread tension Magnet in period T2. (if 0,the thread tension magnet remains continuously switched on)
TIME2 Duty	5	100	100	%	Duty cycle in period T2

7. Pedal

Name	Min	Max	PV	Unit	Description
Num of Speed Level	0	64	0	-	Reserved, invalid
Speed Curve	0	7	0	-	Reserved, invalid

Name	Min	Max	PV	Unit	Description
Pos. 0 Debounce Time	1	255	5	ms	When the pedal is at the 0 position for more than this time, hold will be triggered
Pos. -1 Debounce Time	1	255	80	ms	When the pedal is at the -1 position for more than this time, foot lift will be triggered
Pos. -2 Debounce Time	1	255	100	ms	When the pedal is at the -2 position for more than this time, cutting will be triggered
Pos. -2 Voltage	-30	8	0	0.01V	Adjust the sensitivity of -2 position trigger(cutting), the smaller the value, the lower the sensitivity.
Pedal Type	0	1	0	-	0: Analog pedal 1: digital pedal
Current pedal voltage	-	-	-	-	Current pedal voltage display
Aging working time	5	60	5	S	
Aging hold time	1	10	1	S	
Aging cycle number	10	60000	200	Time	
Aging enable	0	1	0	-	0: Off 1: On

8. Position

Name	Min	Max	PV	Unit	Description
Reference Position	0	359	-	°	Don't modify
Bottom Dead Center	0	359	19	°	Needle in the low position (bottom dead center)
Thread Top Dead Center	0	359	326	°	Thread lever at top dead center
Needle Top Dead Center	0	359	245	°	Threading position (needle thread)
Current Position	0	359	-	°	Display the current real-time angle
Calibrate Pos	-	-	-	-	Manually correct the position,Refer to the user manual for specific operations

9. Start Bartack

Name	Min	Max	PV	Unit	Description
Switch On Angle	-100	60	10	°	Feed-forward angle when the bartack magnet is switched on (Switching from forward to backward during bartacking)
Switch Off Angle	-100	60	-75	°	Feed-forward angle when the bartack magnet is switched off (Switching from backward to forward during bartacking)
Stop When Pedal Pos 0	0	1	0	-	Reserved, invalid
Mode After End Bartack	0	2	0	-	0: Sewing continues after end 1: Machine stop and must be restarted using the pedal 2: Thread cutting after after start bartack
Speed Hold Time	0	500	0	ms	Delay time to speed release after start bartack

10. Manual Bartack

Name	Min	Max	PV	Unit	Description
Mode	0	1	0	-	0: Manual bartack engages immediately 1: Manual bartack engages depending angle
Switch On Angle	0	60	10	°	
Switch Off Angle	0	60	10	°	
Speed Limit Mode	300	3000	0	-	Manual bartack speed limit, if = 0 Speed limit invalid
Synchronization Speed	300	2000	1200	rpm	When the current speed is greater than the synchronous speed, decelerate; after the speed drops to this speed, the backtack output port is activated.

11. End Bartack

Name	Min	Max	PV	Unit	Description
Switch On Angle	-100	60	10	°	Feed-forward angle when the bartack Magnet is switched on (Switching from forward to backward during bartacking)
Switch Off Angle	-100	60	-75	°	Feed-forward angle when the bartack Magnet is switched off (Switching from backward to forward during bartacking)
Hold On Fun	0	1	0	-	Reserved, invalid

12. Ornamental Bartack

Name	Min	Max	PV	Unit	Description
Enable	0	1	1	-	0: Off 1: On
Speed	180	1500	800	rpm	Speed of ornamental-stitch bartack
Hold Time	0	1000	50	ms	Ending time during ornamental-stitch bartack

13. Darn

Name	Min	Max	PV	Unit	Description
Enable	0	1	0	-	Reserved, invalid
Speed	300	3000	2800	rpm	Reserved, invalid
Speed Mode	0	1	0	-	Reserved, invalid
Switch On Angle	0	254	10	°	Reserved, invalid
Switch Off Angle	0	254	10	°	Reserved, invalid

14. Bartack

Name	Min	Max	PV	Unit	Description
Deceleration when Adjusting Feed Dog	0	1	1	-	Speed decrease when feed dog is repositioned
Synchronization Speed	180	3000	500	rpm	Level to which the speed is supposed to be reduced when the feed dog is repositioned
TIME1	0	999	100	ms	Activation time of bartack magnet in period T1
TIME1 Duty	5	100	100	%	Duty cycle in period T1
TIME2	0	60000	30000	ms	Activation time of bartack magnet in period T2. (if 0,the bartack magnet remains continuously switched on)
TIME2 Duty	5	100	100	%	Duty cycle in period T2

15. Stroke Adjustment

Name	Min	Max	PV	Unit	Description
Enable	0	1	1	-	0: Off 1: On
SPEED	180	3000	1800	rpm	Stroke adjustment entry speed
Type of Potentimeter	0	9999	0	-	Reserved, invalid
Num Stitches for HP Auto off	0	9999	0	Stitches	Number of stitches for automatic Switch-off of quick stroke adjustment (when 0, quick stroke adjustment is deactivated)
Speed Limit Mode	0	1	0	-	Reserved, invalid
Spd Hold Time After HP Off	0	6000	100	ms	Delay time to speed release after automatic Switch-off of quick stroke adjustment
Lower Threshold	0	20	17	-	

Name	Min	Max	PV	Unit	Description
Upper Threshold	0	20	5	-	
Lower Threshold Spd	180	3000	3000	rpm	
Upper Threshold Spd	180	3000	1800	rpm	
Type of HP Sign	0	1	0	-	0: Store signal 1: No store signal
Cur Level	0	20	-	-	Display of current level, The greater the level, the greater the stroke of the presser foot
LIMIT_SPD	180	3000	-	-	Maximum speed allowed by current level

16. Stitch Length Switch

Name	Min	Max	PV	Unit	Description
Speed limit for long stitch length	180	3000	0	rpm	Speed limit for long stitch length, (when 0, speed limit invalid)
Stitch length at bartack	0	2	0	-	0: Preset stitch length (Long/Normal) 1: Normal stitch length 2: Long stitch length
Cur Stitch length	0	1	0	-	0: Normal stitch length 1: Long stitch length
Stitch shorting at seam begining	0	5	0	Stitches	
Stitch shorting at thread cutting	0	5	0	Stitches	
Speed at stitch short	200	1000	500	rpm	

17. Needle Cool

Name	Min	Max	PV	Unit	Description
Needle cool mode	0	1	0	-	0: Normal needle cooling 1: Speed-dependent needle cooling
Turn-Off Delay	0	6000	2500	ms	Switch off delay of needle cooling
Cooling Activation Speed	180	3000	2000	rpm	Speed for switching on needle cooling
Needle cool during foot lift	0	1	0	-	0: Off 1: On
Needle cool	0	1	0	-	0: Off 1: On

18. Thread Clamp

Name	Min	Max	PV	Unit	Description
Mode	0	2	0	-	0: Off 1: Only TC 2: TC and FL
Option	0	3	0	-	0: Thread clamp only at seam beginning 1: Thread clamp at seam beginning and reverse 2: Thread clamp at seam beginning and during sewing foot lift 3: Thread clamp at seam beginning and during reverse and sewing foot lift
FK switch on angle	0	359	75	°	
FK switch off angle	0	359	215	°	
FL switch on angle	0	359	60	°	
FL switch off angle	0	359	120	°	
FL switch on duty	0	100	100	%	

Name	Min	Max	PV	Unit	Description
NSB	-	-	-	-	Reserved, invalid
Additional Clamp Turn-On Angle	-	-	-	-	Reserved, invalid
Additional Clamp Turn-Off Angle	-	-	-	-	Reserved, invalid
Thread advancing Device Turn-On Angle	-	-	-	-	Reserved, invalid
Thread advancing Device Turn-Off Angle	-	-	-	-	Reserved, invalid
Tension Release Turn-On Angle	-	-	-	-	Reserved, invalid
Tension Release Turn-Off Angle	-	-	-	-	Reserved, invalid
TIME1	-	-	-	-	Reserved, invalid
TIME1 duty	-	-	-	-	Reserved, invalid
TIME2	-	-	-	-	Reserved, invalid
TIME2 duty	-	-	-	-	Reserved, invalid

19. Light barrier

Name	Min	Max	PV	Unit	Description
Equalizing stitches for normal stitch length	0	255	0	stitches	When detecting the disappearance of the barrier signal, continue to run to Equalizing stitches and then end the sewing
Equalizing stitches for long stitch length	0	255	0	stitches	When detecting the disappearance of the barrier signal, continue to run to Equalizing stitches and then end the sewing
Num of barrier seam	0	255	1	Stitches	Reserved, invalid

Name	Min	Max	PV	Unit	Description
Equalizing stitches for knitted garment filter	0	255	0	Stitches	Reserved, invalid
SPD for barrier equalizing stitches	180	3000	1000	rpm	
Barries mode	1	3	3	-	1: Seam beginning detection 2: Seam end detection 3: Seam beginning & seam end detection
Mode for seam beginning	0	1	0	-	Reserved, invalid
Knitted garment filter	0	1	0	-	Reserved, invalid
Light barrier Signal Polarity	0	1	0	-	0: Bright 1: Dark
Auto	0	1	0	-	0: Off 1: Semi-automatic mode 2: Fully automatic mode

20. Thread Wiper

Name	Min	Max	PV	Unit	Description
Enable	0	1	0	-	0: Off 1: On
Switch on time	10	255	100	ms	Switch-on period for thread wiper
No foot lift time	10	255	100	ms	When thread wiper off, after No foot lift time, the foot is allowed to lift

21. Thread Monitor

Name	Min	Max	PV	Unit	Description
Enable	0	4	0	-	Bobbin stitch counter/remaining thread monitor 0: Off 1: Bobbin stitch counter A 2: Bobbin stitch counter B 3: Bobbin stitch counter C 4: Remaining thread monitor
Bobbin stitch counter A	1	9999	6000	Stitches	Reset value of bobbin stitch counter A
Bobbin stitch counter B	1	9999	6000	Stitches	Reset value of bobbin stitch counter B
Bobbin stitch counter C	1	9999	6000	Stitches	Reset value of bobbin stitch counter C
Factor of bobbin stitch counter	1	255	10	-	Reserved, invalid
Num of stitches for remain thread monitor	0	9999	0	Stitches	Number of stitches for the remaining thread monitor
Motor stop when cnt reaches 0	0	1	1	-	Stop sewing motor when the counter Reaches 0 0: Off 1: On
Seam cnt enable	0	1	1	-	Counter plus one after cutting 0: Off 1: On
Upper Seam Monitor	0	1	0	-	Reserved, invalid
Up monitor active speed	180	3000	180	rpm	Reserved, invalid
Up monitor active stitches	0	255	2	stitches	Reserved, invalid
Up monitor sign filter	0	1000	3	ms	Reserved, invalid
Lower Seam Monitor	0	1	0	-	Reserved, invalid
Down monitor active speed	180	3000	180	rpm	Reserved, invalid
Down monitor active stitches	0	1000	3	ms	Reserved, invalid
Down monitor signal filter	0	1000	3	ms	Reserved, invalid

22. Carrier roller/puller/seam middle guide

Name	Min	Max	PV	Unit	Description
Seam middle guide follow HP	0	1	0	-	0: On 1: Off
Auto lift mode	0	3	1	-	0: When backtacking and presser foot lifting, the seam middle guide lifts. 1: When presser foot lifting, the seam middle guide lifts. 2: When backtacking, the seam middle guide lifts. 3: When backtacking and presser foot lifting, the seam middle guide does not activate.

23. System Settings

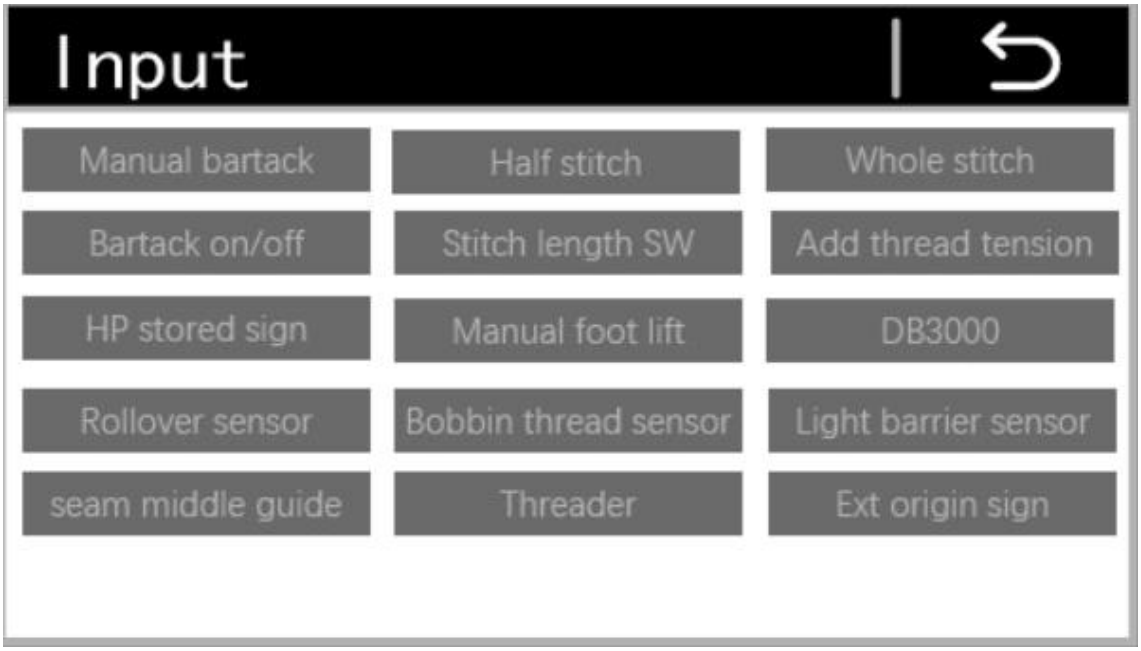
Name	Min	Max	PV	Unit	Description
Brand number	-	-	-	-	
Factory Reset	-	-	-	-	
WiFi Configuration	-	-	-	-	
Language	0	4	0	-	0: Chinese 1: English 2: Korean 3: Spanish 4: French
System Version Info	-	-	-	-	
Device model	0	15	0	-	0: 867/868, Underslung Motor, Single Needle, Gear Ratio 1:1 1: 867/868, Underslung Motor, Double Needle, Gear Ratio 1.43:1 2: 867/868, Underslung Motor, Double Needle, Gear Ratio 1:1 3: 867/868, Direct Drive Motor, Single Needle, Gear Ratio 1:1 4: 867/868, Direct Drive Motor, Double Needle, Gear Ratio 1:1 5: 669, Underslung Motor, Single Needle, Gear Ratio 1.56:1 6: 669, Direct Drive Motor, Single Needle, Gear Ratio 1:1 7: 667, Direct Drive Motor, Single Needle, Gear Ratio 1:1 8: 680, Underslung Motor, Single Needle, Gear Ratio 1:1 9: 669, Underslung Motor, Single Needle, Gear Ratio 1.12:1

24. Developer

（Code：3692）

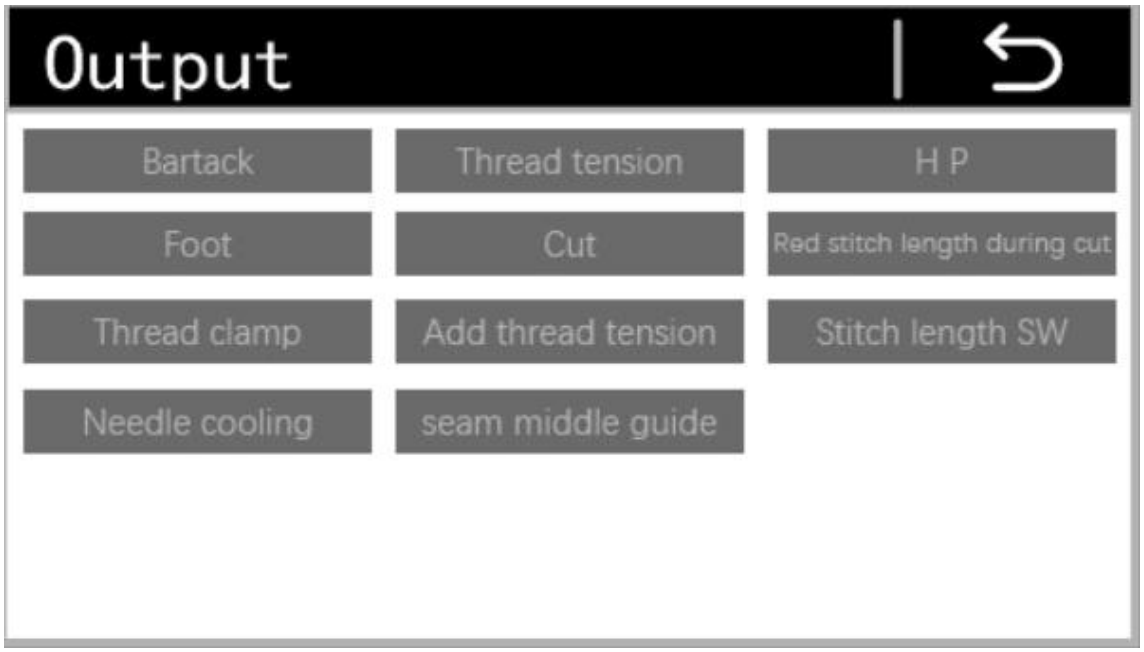
24.1 Input Check

When the external corresponding button is pressed, check whether the indicator light on the lower page is on。



24.2 Output Check

Click the corresponding button on the lower page and check whether the external action is normal。



24.3 Input Cfg

Input	Configurable function
Key 1	# NO FUN # Manual bartack # half stitch # Whole stitch # bartack on/off # Stitch length SW # Add thread tension # HP stored sign # Manual foot lift # DB3000 # Rollover # bobbin thread sensor # Light barrier sensor # Needle cooling # seam middle guide # Threader # Operation lock
Key 2	
Key 3	
Key 4	
Key 5	
Key 6	
X10	
X11	
X12	
X13	
HP-IN	

24.4 Output Cfg

Output	Configurable function
Y15	# NO FUN # bartack # thread tension # HP # Foot # Cut # Red stitch length during cut # thread clamp # Add thread tension # Stitch length SW # Needle cooling # seam middle guide # Needle bar rotation
Y17	
Y18	
Y20	
Y21	
Y27	
Y28	
Y30	
Y32	
Y34	
Y35	
Y36	
Y37	

24.5 Motor

Name	Min	Max	PV	Unit	Description
Motor number	0	10	2	-	0: VS-M00,max speed 3000N/min , max torque 7.2 N/m 1: VS-M01,max speed 3000N/min , max torque 7.2 N/m 2: VS-M02,max speed 3000N/min , max torque 9.4 N/m 3: VS-M03,max speed 2500N/min , max torque 12 N/m 4~9: Reserved
Flux weak	0	1	1	-	Do not modify.
Flux weak depth	0.0	100.0	100.0	%	Do not modify.
Input Phase Loss Detection	0	1	0	-	Do not modify.
DC Bus Voltage	-	-	-	-	Bus voltage real-time display
Controller Temperature	-	-	-	-	Controller temperature real-time display
24V voltage	-	-	-	-	24V voltage real-time display
Overload Cnt	0	36000	-	-	Simulate motor thermal overload. The larger the value, the higher the motor temperature. When it exceeds 36000, the machine alarms and displays error code 503.
Moto curr	-	-	-	-	Motor output current real-time display
Inertia Ratio	1.00	2.00	1.70	-	Adjust the machine rigidity. If vibration occurs when the machine stops, decrease this value.
Maximum Speed	1500	4000	4000	rpm	
Electronic Handwheel	0	1	0	-	
Overvoltage Protection Value	420	500	420	V	
Bartack Maximum Speed	300	2000	0	rpm	Default value 0 means no limit.