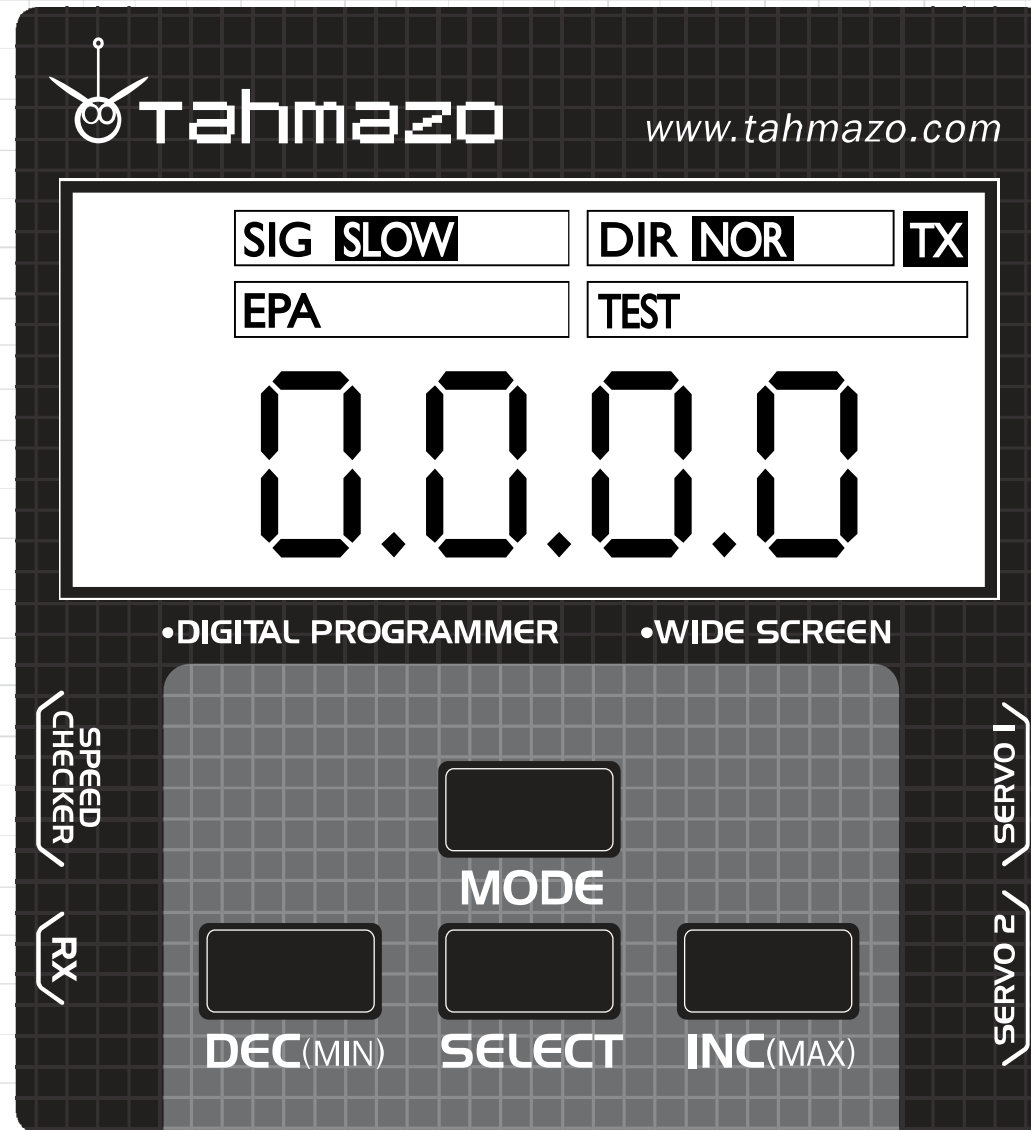


SERVO PROGRAM BOX

I N S T R U C T I O N M A N U A L

Tahmazo Servo Program Box

INTRODUCTION	4
FEATURES	5 - 7
USING THE TAHMAZO SERVO PROGRAM BOX	8 - 9
<i>Using Servo Program Box with radio system</i>	<i>10 - 12</i>
<i>Using Servo Program Box without radio system</i>	<i>13 - 15</i>
<i>Using Servo Program Box as a servo tester</i>	<i>16 - 17</i>
SAFETY NOTES	18
WARRANTY	18
SERVICE PROCEDURE	19
DISCLAIMER	19



Tahmazo Servo Program Box

Introduction

Tahmazo Servo Program Box adds flexibility to Tahmazo programmable servos by being able to setup the servos with various parameters such as travel angle, dead-band width, speed, acceleration, signal speed, direction and end-point adjustments. Servo Program Box can also be used as a servo tester and can test up to 2 servos.

Programmable servos are multi-functional and can be programmed to serve in different role. In the case of speed and rotation settings, these servos can be programmed as “normal servo”, or as “retract gear servos”, “scale hatch servos”, “robot servos”, or whatever you need at the time. As these are digital servos, they have finer resolution compared to some analog servos and that will mean smoother and more accurate control of your models. Using the Rotation setting to limit the travel retains the high resolution on the servo, whereas limiting the servo throw on the transmitter loses a proportional degree of control resolution.

Trimming the servo using the Servo Program Box can also mean keeping the trims and rotation normal on your transmitter for all models. This can prevent the numerous crashes due to wrong model from Tx memory or wildly wrong trim settings.

Programming the Tahmazo Programmable Servos using the transmitter signal, the Servo Program Box can program the end-point of the servos as well as the failsafe position of the servo.

Features

The programming features of the Servo Program Box are:

1. Trim

By trimming, you can fine tuning the servo position. This function works in the same way as the trim on the transmitter. By using the Tahmazo Servo Program Box to trim the servos, you will be able to keep the trims normal on your transmitter for all models.

This is also useful to adjust trim offsets in servo installation, so that your transmitter trims can be set to neutral and therefore retain maximum in-flight trim adjustment capability.

2. Dead Band Width (μS)

Dead Band is the range of the signal over which the servo does not change position in response to a change in signal.

The range of value is from $0\mu\text{S}$ to $16\mu\text{S}$.

This is useful for applications where two servos are both operating one control surface, and avoids one servo 'fighting' the other, causing unnecessary 'binding'. Another application for this setting is when the servo produces an undesirable 'buzz' due to some receivers output signal.

The servo buzz can be eliminated by increasing the value of the Dead Band Width. (However, note that Digital servos have a small constant hum, which is natural for digital servo and should not be associated with the 'buzz' as mentioned)

3. Speed

This feature allows the servo to be used in applications that would normally require either an additional 'slow servo' or pneumatics to actuate features such as hatches, doors and landing gear.

You can slow the servo to as slow as 1% of its normal speed of rotation.

4. Acceleration

This feature adjusts the acceleration of the servo from its neutral position. By increasing the acceleration, the power requirement of the servo will also increase. As such, it is recommended to make increment of not more than 5% each time.

5. Brake

This feature adjusts the braking effect of the servo towards its desired position. If the servo does not stop at the desired position, usually in a higher load than expected situation, increasing the brake value will enable to servo to stop at the desired position.

6. Signal type

The default setting is **SLOW**. The **FAST** signal type is set when the servo is used with some high speed gyros.

7. EPA (End point adjustment)

The servo end points can be adjusted using the Servo Program Box. By using the Tahmazo Servo Program Box to adjust the end points of the servos, you will be able to keep the settings normal on your transmitter for all models.

Again, this will retain maximum in-flight adjustment capability on your transmitter and resolution of the servos.

8. Fail Safe setting

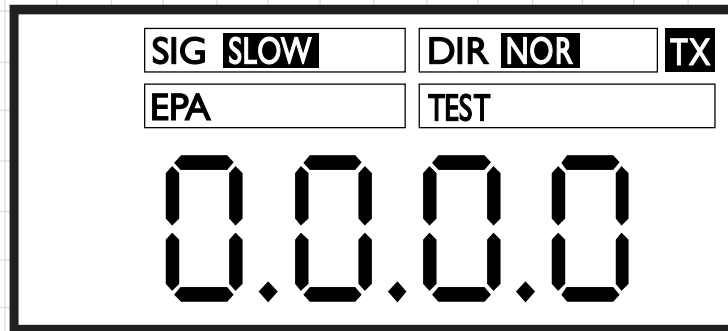
The fail safe setting of the servos can be pre-programmed using the Servo Program Box. The servo will move to the pre-programmed fail safe position when the signal is lost. This feature will work only for non-PCM radio system.

Tahmazo Servo Program Box

Using the Tahmazo Servo Program Box

The Tahmazo Servo Program Box can function in 3 modes and the features available in each mode are as follows:

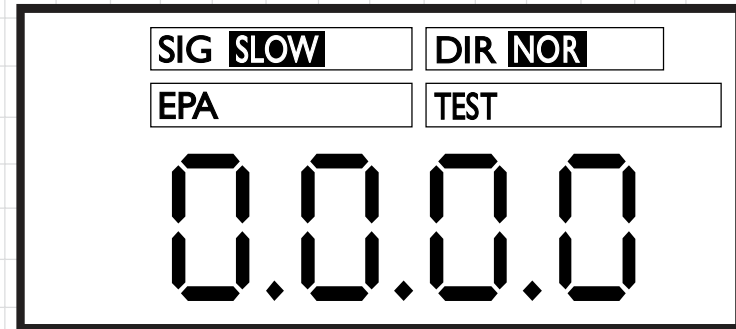
1. With radio system



Features available in this mode are:

- Trim
- Speed
- Brake
- Direction
- EPA
- Dead-band Width
- Acceleration
- Signal Type
- Fail - Safe

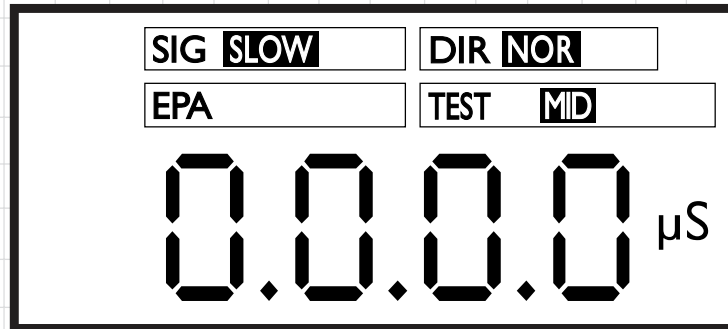
2. Without radio system



Features available in this mode are:

- Trim
- Speed
- Brake
- Direction
- EPA (The desired end point adjustment made in this mode may differ when different TX is employed)
- Dead-band Width
- Acceleration
- Signal Type
- Fail - Safe

3. Servo tester



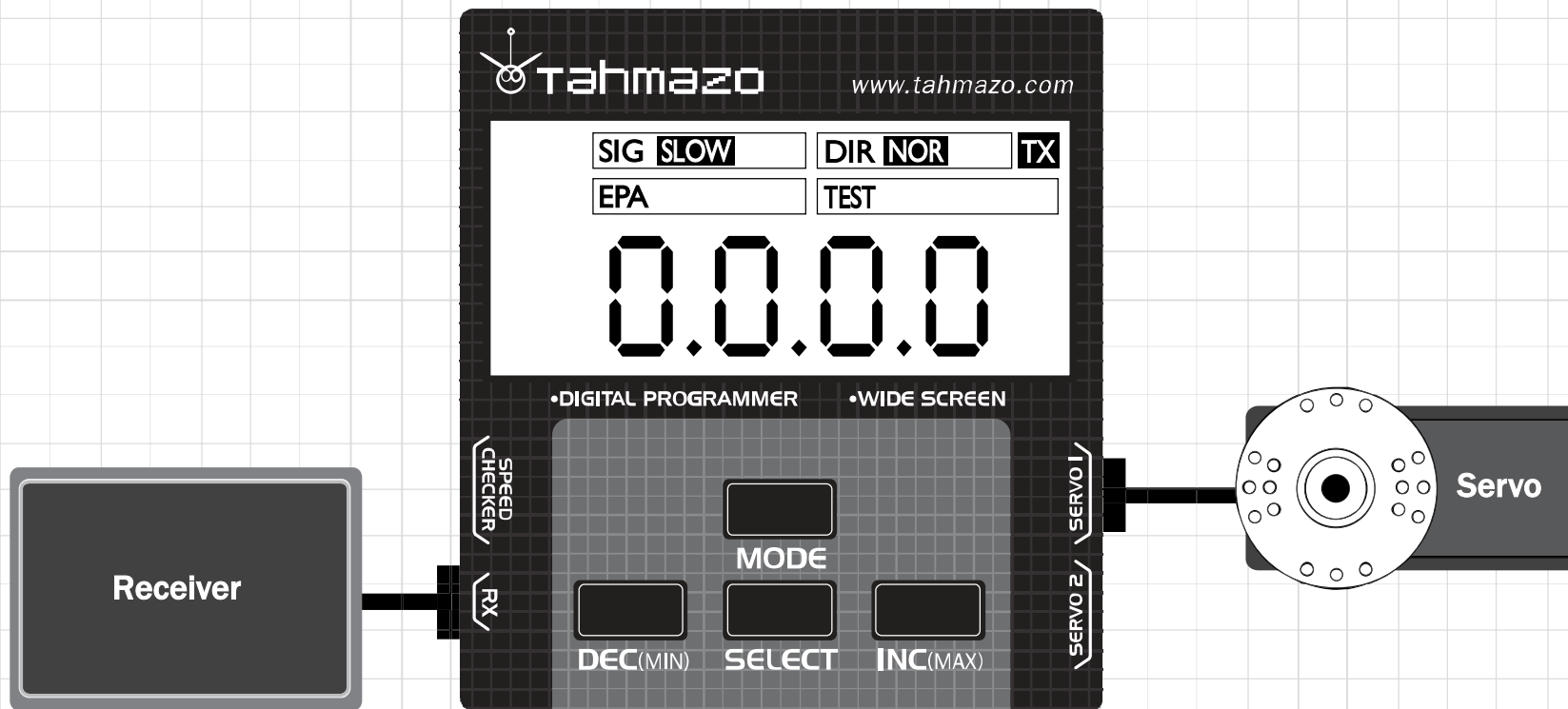
Features available in this mode are:

- Auto sweep test
- Movement test
- Trim test

Tahmazo Servo Program Box

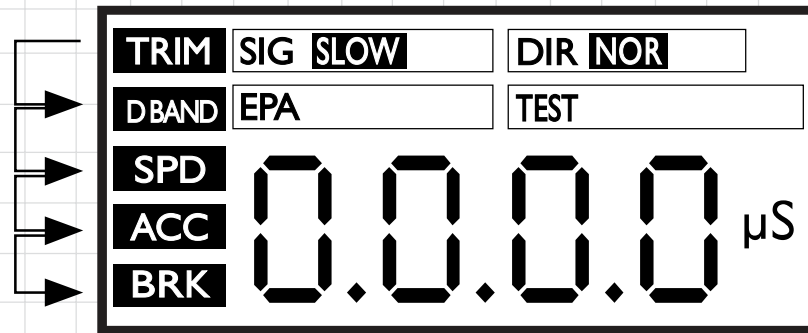
Using Servo Program Box with radio system

Connect the Tahmazo Servo Program Box to the receiver channel that the servo is intended to be operated. Once both the receiver and transmitter are switched on, the Tahmazo Servo Program Box will display TX on the screen. The servo will move according to the movement of the transmitter stick and the position is also displayed on the Tahmazo Servo Program Box. Once connected, the Tahmazo Servo Program Box will display the relative servo position from neutral pulse width (1500 μ S).



In order to program the Tahmazo programmable servos,
press **MODE** button to select the parameters (Trim, Dead-band width,
Speed, Acceleration, Brake, Signal Type, Direction, EPA and Failsafe).

Press **MODE** to
toggle function



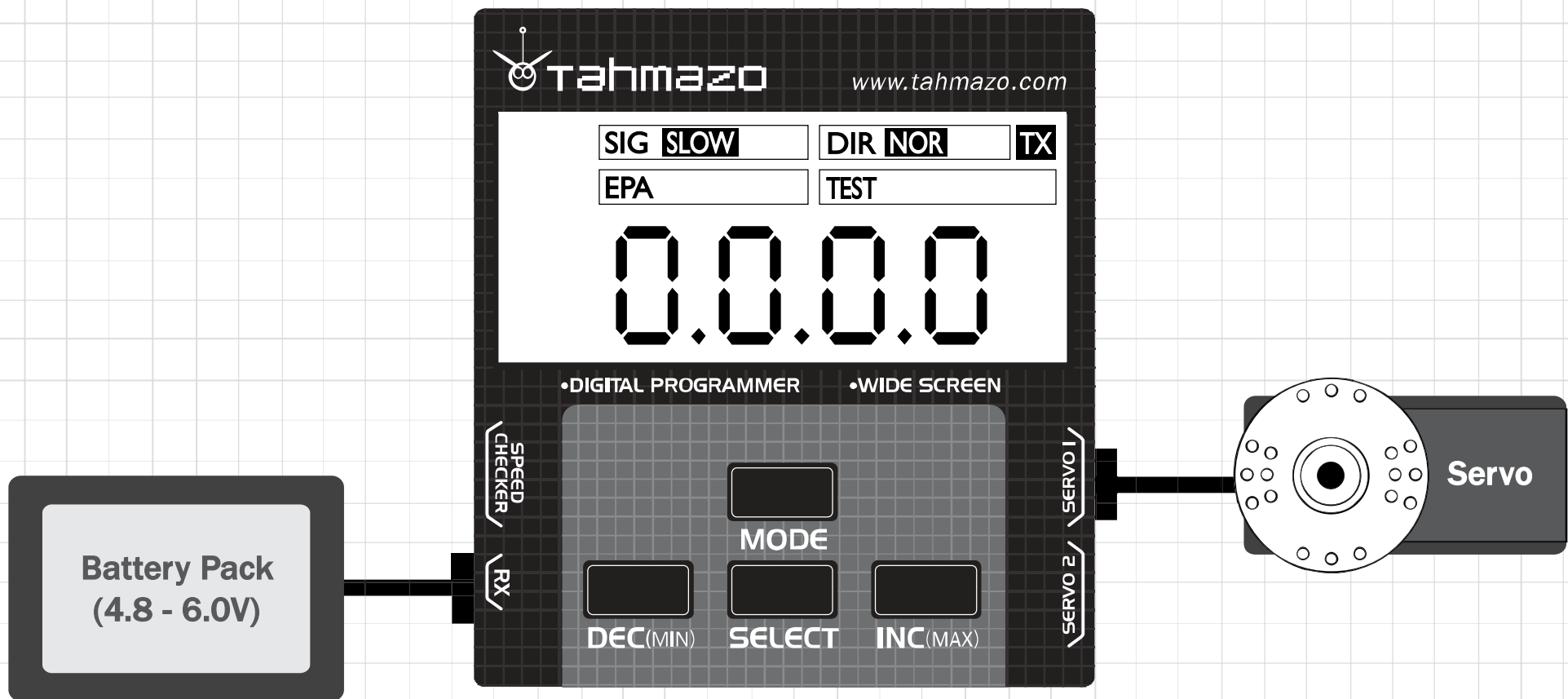
Tahmazo Servo Program Box

The values allowed for each parameter are:

Parameter	Explanation	Values	To change values
TRIM	Servo Trim	-120 μ S to 120 μ S	Press ◀Dec or Inc▶
DBAND	Dead-band Width	0 to 16 μ S	Press ◀Dec or Inc▶
SPD	Servo Speed	1 to 100%	Press ◀Dec or Inc▶
ACC	Servo Acceleration	90 to 110%	Press ◀Dec or Inc▶
BRK	Servo Brake	90 to 110%	Press ◀Dec or Inc▶
SIG	Signal Type	SLOW or FAST	Press ◀Dec or Inc▶
DIR	Servo direction	NOR or REV	Press ◀Dec or Inc▶
EPA	End Point adjustment L or R	30% to 120%	Press ◀Dec or Inc▶ Press SELECT to set value
F/S	Fail Safe position	700 μ S to 2300 μ S (This function will only work with non PCM or non-programmable failsafe radio systems)	Transmitter stick followed by the SELECT button

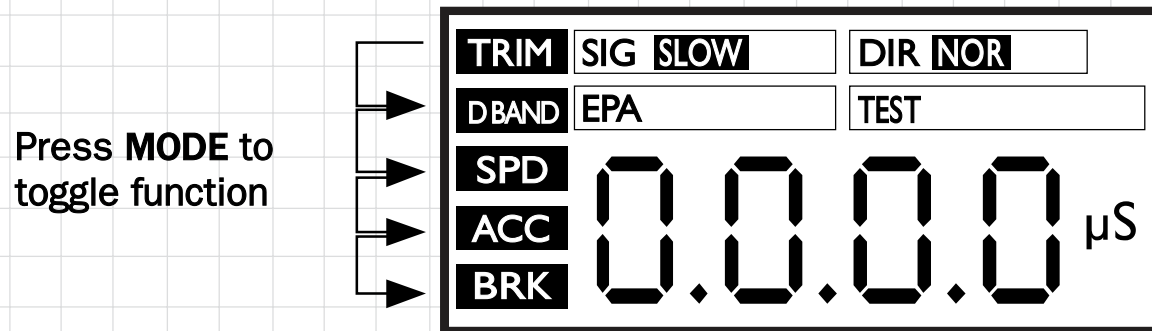
Using Servo Program Box without radio system

Connect the Tahmazo Servo Program Box to a battery pack (DC4.8 - 6.0v) and the servo is intended to be programmed. Once connected, the Tahmazo Servo Program Box will display the relative servo position from neutral pulse width (1500 μ S).



Tahmazo Servo Program Box

In order to program the Tahmazo programmable servos, press **MODE** button to select the parameters (Trim, Dead-band width, Speed, Acceleration, Brake, Signal Type, Direction, EPA and Failsafe).



* Press **SELECT** to toggle within EPA parameter.

The values allowed for each parameter are:

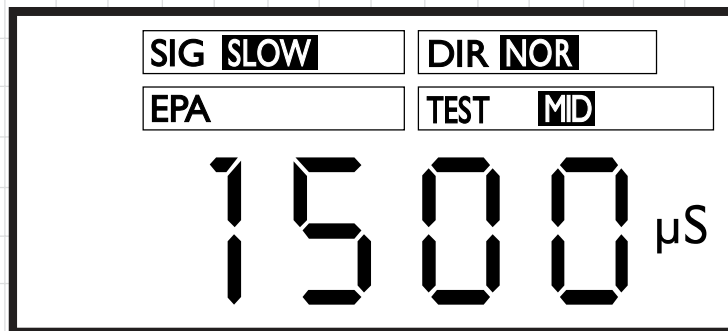
Parameter	Explanation	Values	To change values
TRIM	Servo Trim	-120 μ S to 120 μ S	Press ◀Dec or Inc▶
DBAND	Dead-band Width	0 to 16 μ S	Press ◀Dec or Inc▶
SPD	Servo Speed	1 to 100%	Press ◀Dec or Inc▶
ACC	Servo Acceleration	90 to 110%	Press ◀Dec or Inc▶
BRK	Servo Brake	90 to 110%	Press ◀Dec or Inc▶
SIG	Signal Type	SLOW or FAST	Press ◀Dec or Inc▶
DIR	Servo direction	NOR or REV	Press ◀Dec or Inc▶
EPA	End Point adjustment	L or C or R	Press SELECT Press ◀Dec or Inc▶
F/S	Fail Safe position	700 μ S to 2300 μ S. Servo failsafe position is programmed by using the ◀Dec and Inc▶ buttons to move the servo to the desired failsafe position. (This function will only work with non PCM or non-programmable failsafe radio systems)	Press ◀Dec or Inc▶

Tahmazo Servo Program Box

Using Servo Program Box as a servo tester

Tahmazo Servo Program Box can function as a servo tester for all servos.

In order to use the Servo Program Box as a servo tester, hold the **MODE** button before connecting the battery pack to the Servo Program Box. Then connect the servo to the Tahmazo Servo Program Box.



For Auto sweep test, press the **SELECT** button twice and the Auto Sweep Test will begin. By pressing the ◀Dec and Inc▶ buttons, you can alter the timing of the auto sweep from 0.5sec to 1.5sec. To cancel the auto sweep test, press the **SELECT** button again.

For Servo Movement test, press ◀Dec to move the servo to one end (900μS) and Inc▶ to move the servo to the other end (2100μS). Press the **SELECT** button to move the servo to the neutral position (1500μS).

At the different position (900 μ S,1500 μ S or 2100 μ S), press the **MODE** button once and the display will blink. Trim the servo position by pressing the ◀Dec or Inc▶ buttons. Once the desired servo position is reached, press the **MODE** button to exit. The servo will now perform the movement and auto sweep test up to or at the programmed position.

Trim Test	Values
TEST MIN	700 μ S - Center
TEST MID	701 μ S - 2299 μ S
TEST MAX	Centre - 2300 μ S

The trims settings programmed here will not be retained by the servo memory when the power is disconnected. Programming of the servo control movement must be done by using the Tahmazo Servo Program Box with or without radio.

The neutral position is different for different radio manufacturers and at 1500 μ S, the servo may not be at its neutral position when connected to the radio.

Tahmazo Servo Program Box

Safety notes

- The Tahmazo Servo Program Box is designed for programming Tahmazo Programmable Servos.
- Do not expose the unit to excessive heat or cold, direct sunlight, dust, dirt and damp.
- Avoid shock and do not subject the unit to severe vibration.
- Take extra care to ensure that the correct polarity when powering the Tahmazo Servo Program Box.
- Disconnect all connections from the unit if it is not being used for a prolonged period.

Warranty

Tahmazo Products warrants this product to be free from defects in materials and workmanship for a period of 12 months from date of purchase. Damage due to physical shock, inappropriate power supply(including reverse polarity connection to Servo Program Box), water, moisture and humidity are specifically NOT covered by warranty. During that period, we will repair or replace at our opinion, any products that does not meet these standards. You will be required to provide proof of purchase date (receipt or invoice) by the purchase receipt from the model shop. If, during the warranty period, this unit shows defects caused by abuse, misuse or accident, it will not be repaired or replaced at our option, at a service charge not greater than 50% of the current retail list price.

This warranty does not cover components worn by use, application or reverse voltage, subject of components to foreign materials, any alterations to wires or tampering. In no case shall our liability exceed the original cost of the product.

Tahmazo Servo Program Box

Under no circumstances will the purchaser be entitled to consequential or incidental damages. If you attempt to disassemble or repair this unit, it may void the warranty.

Service Procedure

For servicing of your Tahmazo Servo Program Box, either in or out of warranty, you can send them to our nearest dealer to you, or by post paid and insured to:

Tahmazo Products Pte Ltd
126 Joo Seng Road,
Goldpine Industrial Building,
#08-06, Singapore 368355

Email: service@tahmazo.com

Website: www.tahmazo.com

Please include your address and email with the unit.

Any repairs carried out under warranty do not extend the original warranty period. Be sure to send proof of purchase when you send your unit to us.

Disclaimer

Tahmazo Products Pte Ltd is not responsible for your use of this product, or for any damages or injuries you may cause or sustain as a result of its usage. We are not able to ensure that you follow the instructions supplied with the device, and we have no control over the methods you use for operating, using and maintaining it and batteries to which it is connected. For this reason, we are obliged to deny all liabilities for loss, damage or costs which are incurred due to the incorrect use and operation of our products, or which are connected with such operation in any way.

Tahmazo
www.tahmazo.com