EMCS-ST Digital Servo Integrated Tester

Operating Menu



In order to ensure to use the tester normally, do not

put any heavy things on the surface of the screen!

Because the excharge part is the power interface, please take the direction of the battery.

- 1. Please confirm there are 3 Lion batteries.
- 2. Please confirm the polarity and direction of the battery.
- 3. Please confirm each battery remains power.

Note: Battery misusing may induce to unpredictable sequent. Please be careful to choose batteries, and deal with discarded batteries.

Note:

Any information changes from the operation menu will not be informed separately.

The manufacture company and sales company shall not be responsible for the fault and information missing in the operation menu, and shall not be responsible for the damage caused by the operation menu.

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General Introduction

EMCS-ST Digital Servo Integrated Functional Tester (briefed as EMCS-ST tester) is the multi-functional integrated testing instrument specially developed by Shen Zhen Electron Micro Control System Co., Ltd., for achieving the requirement of testing servos for all servo manufactories and servo enthusiasts. The EMCS-ST tester has many characteristics, such as cabinet size, low power consumes, liability, easy for operating and so on.

The EMCS-ST tester is applicable for almost all model or digital servos, and can do many technical tests.

The EMCS-ST tester uses high contrast LCD screen, which can display the testing data clearly.

Characteristics

The EMCS-ST Digital Servo Integrated Functional Tester has many characteristics:

The EMCS-ST tester has high performance with reasonable price. It uses MEGA168 single machine made by ATMEL USA., which is high liable. Combined with self-adjustable synthesis test arithmetic, developed by ourselves, and ensure the speed and stability of the test.

The EMCS-ST tester uses Lion rechargeable battery which uses balance power supply socket, or DC power supply. The flexible power supply is welcomed by market.

The EMCS-ST tester uses scroll menu strip, which makes the operating very easy and clear.

The function of the EMCS-ST tester is easy and useful, which covers almost all data that need to be tested by the user.

The EMCS-ST tester has servo and connect wire for receiver, which makes the testing more easily.

The EMCS-ST uses a high clarity and high contrast LCD screen to display all data and menu, and ensure the user can control the testing information right and completely.

The key of the EMCS-ST tester is big, and comfortable to hold, which can reduce the operating mistake.



Operating Methods

The EMCS-ST Digital Servo Integrated Functional Tester is easy to operate. Now we introduce the full function as following:

I Hardware

The tester has a main tester and 2 testing lines, shown as follows:



The above drawing is the face panel of the EMCS-ST tester. The 4 keys under the panel are MENU, UP, DOWN, ENTER, the up middle is the LCD displayer, and on the right are RESET and ADJUST knob.

II Interface

The interface of EMCS-ST tester is very simple and clear. When insert the power, the tester is start up, and the displayer shows:





Then it enters the operating menu.



III Function Interface

The EMCS-ST tester has person to machine mutual operating function with scroll menu, which is easy to see and simple. The main functions of the menu are:

LINEAR-----Linear Test Mode

FP MODE-----FP Test Mode



DB MODE-----DB Test Mode

SPEED-----Speed Test Mode

CW/CCW-----CW/CCW Test Mode

P_WIDTH-----Signal Receiving Test Mode

SYSTEM------System Version Statement

Follows are introduction to each mode:

LINEAR-----Linear Test Mode

When the screen shows:



Press ENTER button will start linear test mode, and the screen will appear:





The pulse width of the standard servo control signal will present on the screen.

Turning the ADJUST knob to change the pulse width of the output signal, the range of pulse width is 0900US-210US.

Pressing the MENU button, and return to the main menu mode.

Note: the function only use for testing the linearity and searching for the dump point of the damaged servo, also can test the linearity and vibrate point of the engine's timing device.

FP MODE-----FP Testing Mode

Choose FP MODE on the main scrolling menu by pressing up and down buttons, will present the following interface;





Pressing ENTER button will start FP testing mode, and the displayer will show:



The output is 2100US servo pulse control signal. Press UP\DOWN button will choose MIDDLE or BOTTOM, and will out put 1500US middle signal and 900US minimum signal.

Pressing MENU button will return to main scrolling menu mode.

Note: the function is designed for testing the return ability of servos, and if fix to the plane, it can find the theory middle of the servo quickly.

DB MODE-----DB Testing MODE

The size of the dead zone of the servo is a very important guideline, which will influence to discern the input signal of the servo directly.

Theoretically, the dead zone of normal servos shall be 1US, the related steps are 1000 steps. However, because of the precision of the servo and the fixing problems, the actual dead zone will have big differences. By testing the dead zone, the actual size of the dead zone can be defined, which can help to select servos with same sized dead zone.

When the displayer shows:



Pressing ENTER button will start the DB testing mode and shown as follows:



The output dead zone is 0US. Pressing UP/DOWN button, SET 00US will change, and the output signal will change also. The changing range is 00US-15US.

The number will change increasingly, till the servo moves in visible regularly. The displayed number is the actual dead zone of the servo.

Pressing MENU, the interface will return to the main scroll menu.

Note: The function is used to testing the dead zone of the servo (can calculate the resolving power of the servo), and help to select linkage, differential and compound signal which control the servo.

SPEED-----Speed Testing Mode

Speed is also an important index of servos, which directly influent the speed of servos.

Different kind of servos will have their own nominal responding speeds. Because of the motor's speed and the fixing issues, the actual speed is different to the nominal speed (after a period of using time, the speed will change also). By testing the speed, we can control the actual speed and select the similar servos (some compound control servo is sensitive to this figure, such as helicopter model CCPM revolving wring with 3 servos).

When the displayer shows:





Pressing ENTER button to start the DB testing mode, and the displayer will present:



After about 1 second:



The number 0.176 is the actual time for the servo to turn 60°. Press ENTER to re-test it. The tests will have different result, which shows the differentia of the servo's speed, however, if the speed always the same, the servo is better.)

Press MENU button and return to the main scrolling menu.

Note: The function is used to testing the servo's speed, and help to choose partner linkage, differential and compound signal servos.



CW/CCW----- CW/CCW Testing Mode

This mode is help for users to testing the life of the servo (common user please be careful to use this function).

When the displayer shows:



Pressing ENTER button, will start CW/CCW scanning mode, and the displayer shows:



The output port does not output. Press UP/DOWN to change the output degree and output the CW/CCW scan signal. The degree can be set from 00 to 10, which responds slow to fast.

Press MENU to return to the main scrolling menu.



Note: This function is used to testing aging and life of the servo, and can rectify some mistakes for certain shaking servos.

P_WIDTH-----Receiver Signal Testing Mode

The P_WIDTH mode is used to testing the pulse signal of the receiver.

When the displayer shows:



Connect the tester with the receiver and press ENTER button to start the receiver testing mode, and the displayer will present:



After 1 second, the displayer will present:



The number 1500 US is the output pulse width of the receiver.

Please confirm the connection between the tester and the receiver is OK, and can connect to servo to test.

Press MENU button to return to the main scrolling menu.

Note: This function is used to test the output signal of the receiver, and also can connect to servo to find the source of shakes.

SYSTEM------System Version Announcement

System is the final operation on the main menu, which shows the system version information.





Press ENTER button to start receiver testing mode, and the displayer will present:



Press MENU button to return to the main scroll menu.

Note: This function is used to checking the version style of the tester.

Remark: The change caused by system version update will not

be noticed.

Annex A

Maintenance Instruction

A-1



Annex A Maintenance Instruction