

PLEASE READ BEFORE ANY USE OF THE TIMER SYSTEM

OPERATION AND USE OF THE TEXAS MICRO E TIMER

MODELS A, B, AND, C SYSTEMS

Congratulations on your purchase of the finest timer available for E-36 and other electric power Free Flight. This is the only timer that lets you see the motor run time you have set and the DT time you want, all without pushing any buttons or doing a test run. And, you can set the motor time for anything you want, you are not limited to some set values that may or may not fit your needs. We know you will really like this product. After all, Texas Timers has been meeting and exceeding your timer needs for over 15 years. For those who have taken advantage of our Plug and Fly™ we hope you find this service to your liking. If you have any suggestions, we would love to hear them.

The following instructions are written with the goal of answering your questions as you progress. For some, this detail will be too much, and we apologize for that. This is a new flying experience for many, and we want to do all we can to make it successful and enjoyable. We will walk you through every detail of installing and using these fine products. Installation of the timer and circuit board is pretty well covered in detail on our Web site with lots of photos, so we will not attempt to duplicate that.

WARNING: The motor can only be started by holding in the push button on the circuit board for at least one second and then releasing it. And, the motor will only start with the timer switch closed. The switch is closed when the release wire rests in the scroll threads. You can hear a faint “click” when the switch closes. A similar “click” happens as the switch opens when the wire releases from the scroll.

SETUP FOR OPERATION

These instructions assume you bought the “Plug and Fly™” configuration from us. Otherwise, you will need to adjust for your particular situation. We are going to walk you through hooking it all up on your table without any soldering. You can even run it and play with it. How cool is that?

- Begin by connecting all the components together, leaving the battery for last. Except for the battery, order of connection is not important.
- Plug the ESC, and Timer into the circuit board. The top pin is considered the “signal” pin, the center is the plus, and the lower one is the ground or neutral. On most connectors the center is a red wire, the bottom one is usually brown or black, and the top can be white, orange, or some other color. When making connections to the board, ALWAYS have the brown/black at the bottom. In doing this, you will be assured the rest are correct. Note: the timer connection has only two wires; the top is not used, so you will only have a red and brown. We have tested the ESCs we sell to make sure a brief reverse connection will not damage it, but that should be avoided.
- If you have the Model B, plug in the servo as detailed above. If you have the Model C, connect the servo and the RDT as described above.
- Plug in the three single color motor wires to the three single color wires from the ESC. Whether you have three banana pins or the Deans connector with three wires, it makes no difference at this stage which wire goes where.

- Now, if you want to run and play (and we suggest you do play with it now) you **MUST** somehow anchor the motor so it does not start walking around or jump and tangle wires. We suggest using some good double sided foam tape to stick the flange to your table or a board that is heavy enough to hold steady on your table. You could use some heavy T-pins in the three flange holes or best, screw it down to a scrap piece of pine. Whatever, the motor needs to be securely held. Just the torque will cause it to want to twist around and cause trouble, such as tearing wires loose.
- **DO NOT (repeat DO NOT)** put a hub or prop on. You will cause damage or pain. Remember, we are just going to play and experiment and get familiar with things, **not go flying**. Any time you have a prop on this baby you have a seriously dangerous instrument in your hands. It has a ton of power.

GETTING FAMILIAR WITH THINGS

- **An Important Reminder:** When done testing, flying, or just playing, you must **ALWAYS** unplug the battery. There are two solid reasons for this. First, while plugged in, the whole thing is live and can start the motor. Secondly, while plugged into the ESC, there is a steady battery power drain, even when the motor or servo is not running. If left on for too long, the battery will discharge below the minimum voltage for a LiPo and become permanently harmed. Your new battery is trash! It cannot be saved.
- Be sure the timer scroll wire is not in the scroll. It should be at rest above the scroll. This is the “timer off or open” position. It is also the position for setting the DT time should you want to. **The motor will not start with the timer in the open position.**
- Now, plug in the battery. Note it will only go in one way. The plugs are polarized so plus (red) and black (minus) always go to each other. **Never Ever** do anything to cause the plus and minus (red and black) wires of the battery to touch. Fire, explosions, sparks, and permanent harm to the battery as well as perhaps you can result.
- If all is correct, you will hear three rising tones, then two short tones, and finally a longer tone. The ESC is now ready for business.
- During this power up, you will see the servo move to the “Home” or 120-second max DT position (if it is not already there). This will always happen when you plug in the battery. The 120 seconds is the default position. If you forget to do any DT setting, at least you will not see an early DT and miss a max.

NOW LET’S RUN THE MOTOR (time for some fun)

- Check that the motor is anchored down and secure, and that you have no prop or hub on the motor.
- Move the timer wire down to one of the scroll threads. Even the first thread will work. You should hear a faint “click” as the micro switch closes and the timer is armed.
- Push the button on the circuit board quickly. Nothing happened did it? This is a safety feature against accidentally starting the motor by bumping the push button. Now, hold the button in for at least two seconds and release it. Whoa, the motor is running, isn’t it? Pretty darn fasts RPMs with no prop. Should be something about 7 times 2500 RPM. There are two ways to stop the motor. First tap the button. The motor stopped instantly. Good, this is a feature to allow you to abort a launch should you change your mind about launching. None of your motor set times or DT time settings are affected. Just press the button for at least two seconds and release when you are ready to fly again. You can hold the button in for as long as you want; it just has to be at least 2 seconds.
- The second way to stop the motor is with the timer, just like you would in real flying. Wind the timer a few turns. You do not need to do a full wind unless you intend to run the motor for 15 seconds or so with the wire in a bottom thread. Put the wire down only one or two threads from the top. The timer switch is closed, and it is armed. Now, hold the button in for at least two seconds and release. The motor is running. Now, let’s “launch”. Trip the start wire to get the timer running. After a few seconds the turning scroll will release the wire and the motor stops instantly. It stops fast because we set the brake ON during our set up for you. You are using a folding prop and you want the fast stop on the motor for the ground-based human timer.

- One more test with the motor, and we will move on to the DT. As before give the timer some winds, and set the wire someplace in the threads down from the top. Hold in the button for at least two seconds and release. The motor is turning up nicely, the wind is calm, and you feel a thermal. Quick launch it! Oops, you forgot to start the timer. The last feature is demonstrated. The motor will stop in 25 seconds from when you released the button, even if you did not start the timer, and a flyaway has been averted. If you have the Model B or C, the DT also tripped automatically one second after the motor was stopped at 25 seconds.
- Setting the actual motor run times is covered in the instructions included with the timer. For many, this is old hat, and for others, it will be new, but for all, it is easy to do, reliable, accurate, and dependable.

Why were you not told to charge the battery before doing this testing? Well, you could have, but the new battery has about a 50% of full capacity charge and with no prop on the motor, we are not drawing much power. We can test/play quite a bit on the initial charge. Should the battery get too low during this initial test phase, the ESC will refuse to start the motor or it will stutter on start. It is time for the charger to be used.

TIME TO SEE HOW THE DT WORKS (Models B and C only)

- You have had a chance to experience the motor timing and how to control it (above). Now, we will cover the DT action.
- As mentioned earlier, anytime you connect the battery, the DT time is automatically set to 120 seconds. Let's see how other times are set.
- There are three DT times available to keep the timer simple, yet meet all your flying needs. First is the fast DT set for one second after the motor is stopped. The one second delay is there to avoid structural damage to the plane by a DT at full speed. The second is 15 seconds and this is for small field testing, testing for the power/glide transition, and for seeing a bit of the glide without a long chase.
- To set the DT, you must enter the DT program mode. You can do this anytime the timer is open or off. (The wire is not sitting in a scroll thread). You press the button for one second and release it. The servo will move to the "Home" (120 second) position, if it is not already there. Press the button a second time and the servo moves to the 15-second position, and a third press will move it to the 1-second fast DT setting. A fourth push will take it back "Home." When the servo is showing the time set you want, stop pushing the button and move the timer release arm down on the scroll for any motor run time you want. Press the button and hold for two seconds to start the motor, trip the timer, and launch.
- While in the program mode, you will hear a short beep from the motor every two seconds. This just confirms you are in the DT time setting condition. The beep stops as soon as you close the timer switch.
- If you don't like the DT time set, simply open the timer, press the button for one second, and you are back in the program mode.
- Now it is time for you do to your own experimenting and playing. Go ahead and put it through its paces with any motor and DT times you want. If you don't like these three times, let us know, as this is a new product, and we did it the way we like to fly. Confirmed by experienced electric competition fliers. A fourth time could be programmed in if the need/demand is present.

WHAT TO DO AFTER THE FLIGHT

When you pick up the plane after a flight, simply tap the button and the servo will move to the last DT setting you had. If you are test flying with 1 second, it will go to the one second mark when you tap the button. This is true because the timer is open and the DT as likely tripped. You are ready for the next test flight, or you can reset the DT time by entering the program mode as detailed previously. (Hold the button in for one second and the servo goes to "Home.")

USE WITH THE BAUER RDT (model C only)

The Bauer RDT will connect directly to the circuit board at the labeled location. The RDT uses a three-pin connector that is the same as on our board, so a male-to-male connector cable is needed. We do sell one like this for customer convenience. When the hand held transmitter button is pushed, the RDT receiver sends a signal to our board and then our board tells the ESC to stop the motor (if it is running), and a second later, we move the servo to the DT release position. If the motor is not running, we will DT immediately. The RDT receiver gets the power it needs to operate from our board, so no extra battery is needed.

- If you have the RDT, you can connect it and test it. Nothing needs to be done to allow our system to work with the RDT. It is ready to go as shipped.

SETTING UP THE SERVO FOR DT

Our Web site has some photos of the servo in the four positions (120, 15, 1, and DT). If you have a servo wheel, it is pretty easy to put a wire under it with a slot in the wheel to release the wire when it reaches that point. If you do not have a wheel, then you will put a wire under an arm so that the wire is released at the correct point. You may need to bend the wire a bit to let it stay under the arm over the approximate 90 degrees of rotation. Again, not complicated and modelers are very inventive and clever people, so we expect to see better implementations than we can think of. You will need a mousetrap sort of release with a hinge point on the fuselage. The long arm of the mousetrap wire will serve to take most of the DT line pull load off of the small servo, so it cannot stall from excess drag. We have a small three-point hinge made for another purpose that could be used. It is shown on the Model B ordering page. It is drilled for 1/32" wire, and that size is perfect for this use.

MOTOR ROTATION DIRECTION PROBLEM

There is a good chance you will find the motor turning in the wrong direction for a plane propeller. The correct direction is Counter Clockwise (CCW) as viewed from the front of the motor. The fix is simple. Just reverse any two wires between the ESC and the motor. With banana pins this is a matter of swapping two wires in the connectors. For the Deans connector, simply unplug and flip it around so the three pins still match up. The connector may look lopsided but that is fine.

CONCLUSION

We have tried to be as clear and complete as possible. If something is confusing to you, it is likely so to others, also, and we would appreciate hearing from you. And, we want to hear about any problems or issues involved with the set up and use of our product. You will not offend us. We have only one objective and that is to supply you with the best timer system you can buy. If we missed that mark, then we want to fix it, if we can.

Thanks and thermals to you,

Hank, the Timer Guy