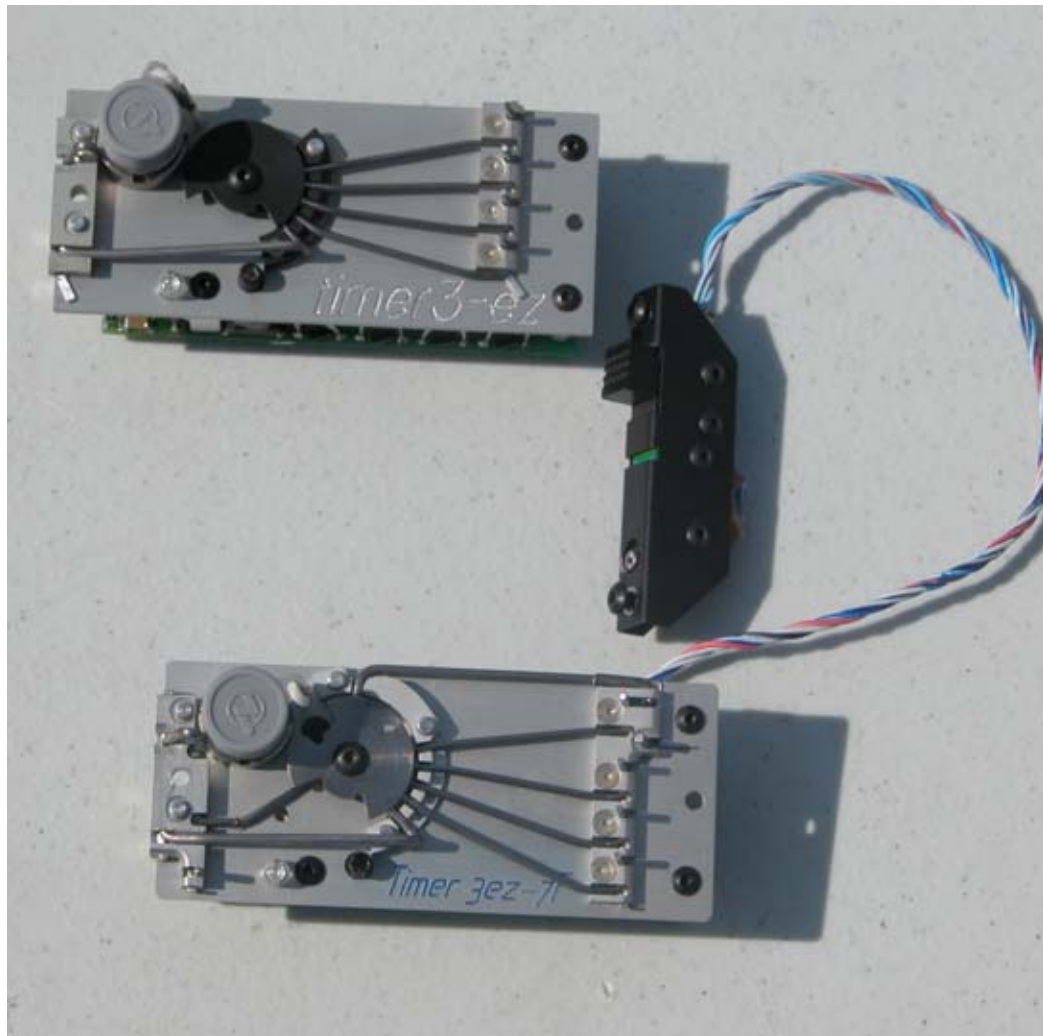


Customer Showcase

CS-Mogle Model Products
rodmogle@juno.com

Background: I am a retired mechanical engineer who has as a hobby enjoys the building and flying of free flight (no radio control) model airplanes. This is a duration, time in the air, competition event in which the flyer has no control once the aircraft is launched. The control of the model is provided by a timer which causes the engine to shutoff at the correct time and causes other control surfaces to operate in the proper sequence and ultimately causes the aircraft to come down after the prescribed flight period. The electronic timer (shown below) provides more consistent timing results and is much easier to set. The timing sequence is set in a small hand held computer and then the data is downloaded to the timer. Once the desired timing sequence is loaded into the timer it remains there in memory and will repeat that exact sequence each time the model is flown.



This timer consists of a microprocessor which controls a small 10 mm stepper motor. The motor, through a worm reduction gear, turns the notched output disk. As each function is timed out the disk rotates 15 degrees which releases one of the timer release levers. This in turn releases a fine wire or line connected to the control surface thus causing an adjustment in the flight attitude. The first timing function controls the length of engine run which is limited to 5 or 7 seconds or less depending on the rules of the event. The functions of the timer are adjustable in 0.1 second increments giving the flyer the necessary fine adjustment of time to control the functions of the model (engine run duration, elevator and rudder attitude, etc.). The photo below shows a five and a seven function timer. The small gear box which starts life as a 0.5" square bar and is machined using the rotary table in one setup. The parts for the first several timers were made in small batches on a hand operated milling machine (with a digital readout upgrade). With the Tormach parts are now made in larger batches, usually in a sheet (6 or 7 inches square) of up to 72 parts per sheet. The parts are machined with tabs to hold them in the sheet until after the de-burring and the anodize processes are completed, and then they are sheared from the sheet.

