



# **Sidus F1Q**

## **Quick Guide**

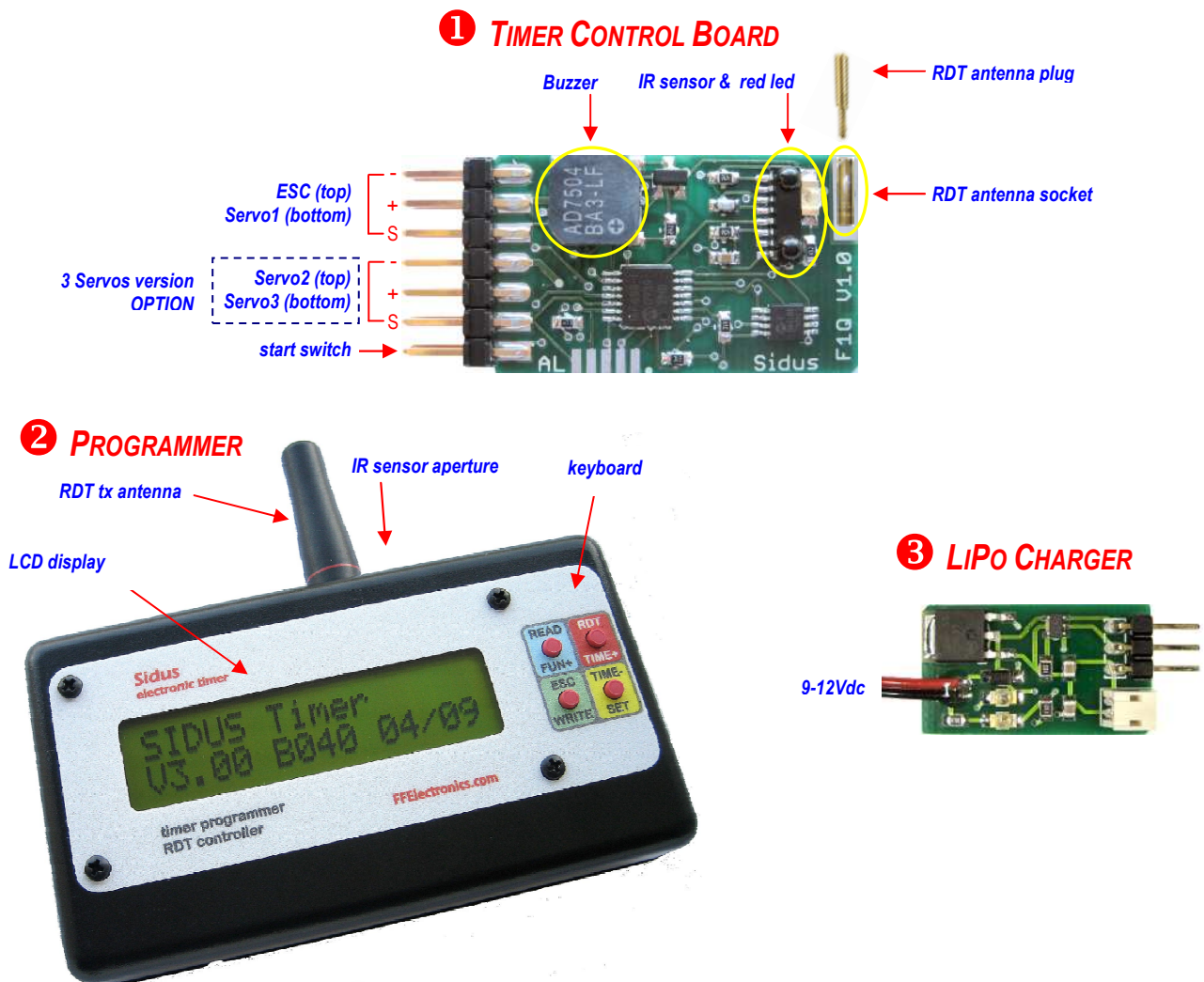
Revision 1.3 – October 2010 - © M.U. 2009/2010

The **Sidus F1Q** e-Timer is made up of a control board to be installed on the model (*Timer control board*) and a handheld wireless device (*Programmer*). The *Timer* controls the electric motor through a standard ESC (electronic speed controller of type BEC from which it also draws power) and is capable to drive up to 3 separate servos. It may be used with a single servo (optional 5-function mechanical assembly releasing traditional arms), or with 1, 2 or 3 servos that directly move the surfaces. All the *Timer* functions are controlled by a single pushbutton. The *Timer* has on-board buzzer, a led lamp, built-in radio DT and Radio motor cut-off.

## Getting Started

Refer to the pictures below to locate the system components.

- Locate the connectors, the IR sensor, the red LED, the buzzer and the RDT antenna socket on the *Timer* control board ❶
- Connect according to the drawing the *Timer* control board ❶ to the ESC, the mechanical assembly servo (**Servo1**) or to the servos (**Servo1**, **Servo2**, **Servo3**), to the start switch
- Connect the ESC to the battery
- Switch ON the *Programmer* ❷ through the switch accessible after removing the small slide cover on the back of the device



# Timer

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## Timing duration and resolution

The timing sequence (motor stop and 7 remaining functions) is programmable. The duration range of the motor and of the functions FUNC1 to FUNC6 is 0.1 a 99.9 sec. The duration range of DT function is 1 a 720 sec. (12 min).

In addition, the *Timer* is capable to store up to 5 separate timing sequences in as many timing memories (**tm1**,..., **tm5**).

## Using the Timer

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The red LED, the buzzer and the disk (or servos) position indicate the current *Timer* status.



Every time the battery is reconnected to the ESC the *Timer* gets discharged and brings the disc (or the servos) to the final position (DT position).

Starting fro a discharged *Timer* the functions are:

**ARM THE TIMER:** press the start switch to bring the disc (or the servos) to its start position

**THROW THE MODEL:** press and hold the start switch. The LED stays ON and the buzzer beeps 3 times, then the motor is started. After about 3 sec. the LED starts flashing fast and the buzzer beeps constantly. From this moment, the model can be thrown: the timing sequence will start as soon as the start switch is released.



if the start switch is released before the LED starts flashing , the motor is stopped and the and the *Timer* remains armed and ready to start

**TERMINATE THE TIMING SEQUENCE:** while the timing sequence is in progress, it can be terminated (the motor stops and the disc or the servos jump to DT position) buy pressing and holding the start switch



***Motor safety start lock:*** after completing a timing sequence, a new motor start is disabled according to the FAI F1Q class rules, and to avoid an inadvertent motor start during retrieval. The motor start is re-enabled through the *Programmer* or by disconnecting and reconnecting the battery to the ESC.

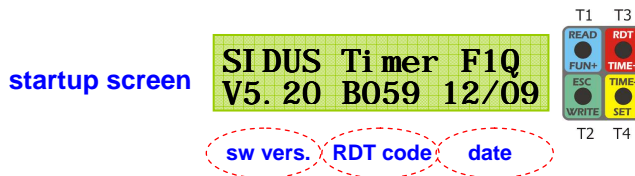


***Automatic Timer sleep:*** the timer automatically “goes to sleep” if inactive for over about 2 min. The status of the *Timer* e and all the internal data are retained. The *Timer* is awakened by shortly pushing the start switch.

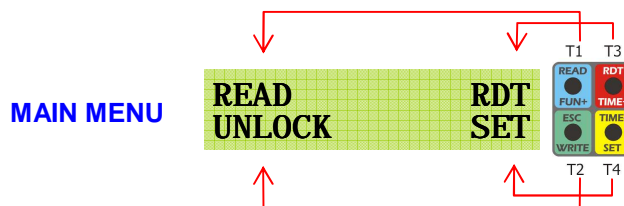
# Programming the Timer

The *Programmer* is needed to modify the timing sequence and dethermalize the model. It also allows to calibrate the servo positioning and set other functions.

Each time the *Programmer* is started, it briefly displays the following startup screen



then it switches to the **MAIN** menu



The possible options are displayed at the corners of the rectangle window of the display: an option is chosen by pressing the button located at the same corner as the rectangle made up of the buttons named T1, T2, T3, T4 (see drawing).



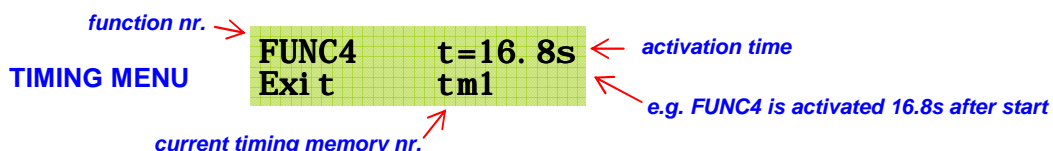
A long (press and hold) or short (press and release) key pressure may be required according to the following rule: choices displayed in upper case (e.g. **READ**, **UNLOCK**,...) require a long pressure (press and hold), choices displayed in lower case except the first character (e.g. **Exit**, **Servo**,...) require a short pressure (press and release).



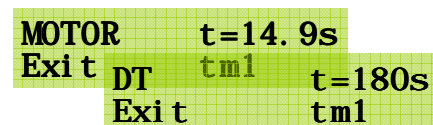
To allow the *Programmer* to communicate with the *Timer*, make sure the *Timer* is ON and aim the *Timer* at the *Programmer* closer than 20 cm. with the IR sensors mutually visible. In case of communication failure, the message **ERROR!** is displayed on the *Programmer*

## Timing visualization

For each function the *Programmer* displays the programmed activation time and the current time memory:



Motor stop time (MOTOR) and DT time are displayed explicitly



All the displayed values are absolute, i.e. referred to time zero.



The motor stop time is freely programmable between 0.1s and DT. All the other functions are strictly sequential (FUNC1 > FUNC2 > ..., FUNC6 > DT). Each activation time is programmable between the activation times of the previous and following functions. *Example.*: if FUNC1 = 11.8s and FUNC3 = 13.6s then FUNC2 will be programmable between 11.9s and 13.5s

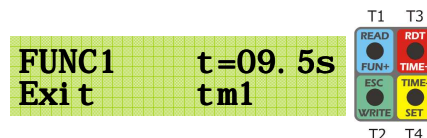
**Automatic Programmer switch off:** the *Programmer* automatically goes to “sleep” to save power if inactive for about 2 min. and wakes up by pressing any key. The message “**Battery low!**” indicates that the internal battery needs to be recharged.

### Timing sequence modification

Each available function has its own activation time and a set of servos positions. The motor is started at the beginning of the timing and it has a programmable stop time. During timing the servo positions related to the current function will be kept until the activation of the following function.

Before modifying the timing sequence it must be read from the *Timer*

1. aim the *Programmer* at the *Timer* (make sure it is ON)
2. from the MAIN menu press and hold **T1 (READ)** until seeing the screen for FUNC1



3. scroll the display with **T3/T4** to view the screens related to the other functions, motor stop time and DT. Reach the function which activation time must be modified
4. press and hold **T1** until ‘w’ (write) appears close to the activation time
5. shortly press **T3/T4** to increase/decrease the time of one count, or press and hold **T3/T4** to have faster increments/decrements until reaching the wished value
6. shortly press **T2 (Exit)** once and repeat the previous steps to modify the activation time of another function, or shortly press **T2 (Exit)** again to end the modifications and return to the MAIN menu
7. If one or more time values are modified, they must be written onto the *Timer* for permanent storing. Press and hold **T2 (WRITE)** until the message “Writing...” screen is displayed. Should the writing fail, it may be repeated with **T2 (WRITE)** or aborted with **T4 (Exit)**. To abort the modifications without updating the *Timer* just make the writing fail by aiming the *Programmer* away of the *Timer* , then choose **T4 (Exit)**.

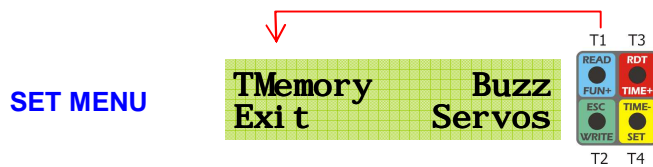
### Motor start unlocking

After the completion of a timing sequence, re-enable a new motor start by aiming the *Programmer* at the *Timer* (make sure it is ON), then press and hold **T2 (UNLOCK)** until the message “**Unl ocki ng...**” is displayed.

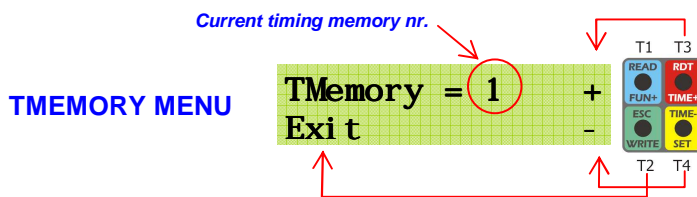
## Timing memory selection

The *Timer* is capable to store 5 separate timing sequences (**tm1** to **tm5**).

1. aim the *Programmer* at the *Timer* (make sure it is ON)
2. from the **MAIN** menu press and hold **T4 (SET)** (> 3 sec.) until the **SET** menu is entered



3. press and release **T1 (TMemory)** to enter the **TMemory** menu: the current timing memory is displayed

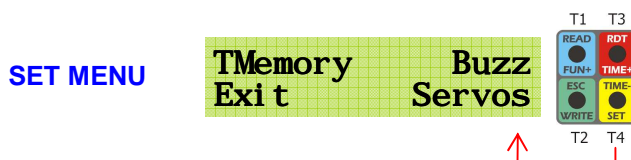


4. press and release **T3/T4** to increment/decrement the timing memory number and reach the wished value (1 to 5)
5. press and release **T2 (Exit)**
6. if the timing memory is changed, it will have to be written onto the *Timer* for permanent storing. Press and hold **T2 (WRITE)** until the message "**Writing...**" is displayed. Should the writing fail, it may be repeated with **T2 (WRITE)** or aborted with **T4 (Exit)**. To abort the modifications without updating the *Timer* just make the writing fail by aiming the *Programmer* away of the *Timer* , then choose **T4 (Exit)**.

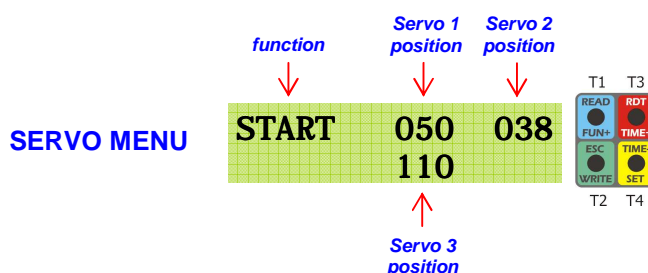
## Servo positioning modification

This modification is needed to adjust the position that the servos assume during each function, then it is used to trim models using servos directly connected to the moving surfaces. It is not needed when using the mechanical assembly to release levers.

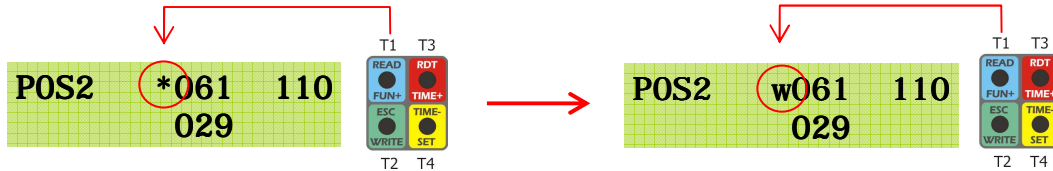
1. aim the *Programmer* at the *Timer* (make sure it is ON)
2. from the **MAIN** menu press and hold **T4 (SET)** (> 3 sec.) until the **SET** menu is entered



3. press and release **T4 (Servos)** to enter the **Servo** menu (the servos automatically move to the **START** position):



- press and release **T3/T4** to browse the menus for each available position (**START**, **POS1**, **POS2**, **POS3**, **POS4**, **POS5**, **POS6**, **DT**). The servos will move to the programmed positions, that will also be displayed with a value between 0 and 130. Reach the wished position (e.g. **POS2** in the drawing below)
- press and release **T1** multiple times to have an asterisk '\*' close to the servo position to be changed
- Press and hold **T1** until the asterisk turns to 'w' (**WRITE**)



Press and release **T3 / T4** to change the servo position: the servo will follow with fine movements accordingly. Holding **T3 / T4** pressed will produce wider movements. The new position will be permanently modified with no need to be transmitted to the *Timer*.

## Radio motor cutoff and radio DT

Press and hold **T3 (RDT)** (> 1 sec) while the timing is in progress to instantly stop the motor (**RMC**) and/or dethermalize the model (**RDT**).

The message 'RDT/RMC Transmitti ng...' will be displayed.



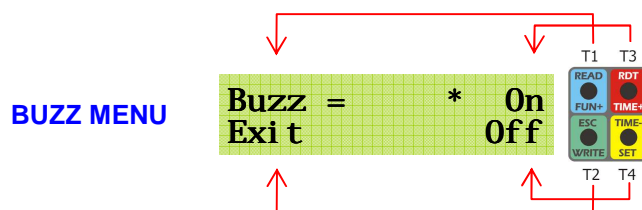
The effect of the command depends on the function that is currently in progress:

- if the motor is ON, the command produces its immediate stop and the *Timer* "jumps" to the next function. Pressing and holding again **T3 (RDT)** the *Timer* dethermalizes the model. The programmed DT time remains unchanged
- if the motor is OFF, the command produces immediate model dethermalization

## Other settings

### Enable or Disable the built-in Programmer buzzer

- From the **SET** menu press and release **T3 (Buzz)** to enter the **Buzz** menu:



- Press and release **T3 (On) / T4 (Off)** to enable/disable the buzzer
- Press and release **T2 (Exit)** to return to the **SET** menu, then press and release **T2 (Exit)** again to exit. This setting will be permanently stored until next modification

## Recharging the Programmer battery

Use only the original LiPo charger. Connect the RED/BLACK cable to a 9-12Vdc power source (e.g. to the car cigar lighter through a proper adapter). Full battery charge will take about 2 hours.

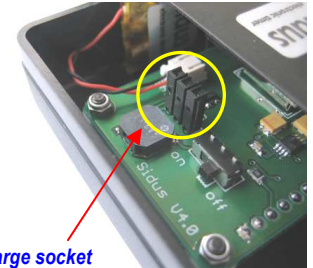


Discard the LiPo battery if it has bulges or scratches. The charge must take place in a safe place, far from flammable materials

**RICARICA:** inserire il connettore a 3-pin del caricatore ③ alla presa di ricarica del *Programmer*, accessibile rimuovendo il coperchietto a slitta sul retro. La batteria interna deve rimanere collegata al *Programmer*.



WARNING: all the 3 charger pins must be inserted in the socket. By inserting only 2 pins the charger will get damaged



### Status of the charger leds

- 9-12Vdc power connected, LiPo not connected: **Green ON, Red ON**
- Charge in progress: **Red ON, Green OFF**
- Charge complete: **Red OFF, Green ON**

## Recommendations

### Control board



lay the control board in the fuselage with the optics (IR sensor and led) closet o a side wall, so that these devices are visible from outside through a small transparent window. Do not expose under direct sunlight.

### Programmer and LiPo Battery



The *Programmer* battery ensures about 200 DT activations and power for programming activities of months. If the system is not going to be used for long time, switch the *Programmer* OFF through the internal switch.

### RDT Antenna

The RDT antenna (twisted or plain steel wire about 170 mm. long) must run vertical out of the fuselage and be electrically isolated from carbon. Solder the antenna to the plug that will be inserted in the socket along the edge of the control board (see picture at pag. 2). Failure to follow the above will decrease the maximum range of the whole RDT system.

## Installing the Timer on multiple models

One additional *Timer* control board (plus LiPo and mechanical gear) with the same RDT code is required to provide another model with the **Sidus** electronic timer. The RDT code is unique for each modeller to allow all his *Timer* control boards to be used with a single *Programmer*. In addition it makes it possible to use the **Sidus** system simultaneously with other modellers having the same or other systems.

# Using the 5-function mech. assembly

## Servo position programming

The **Sidus F1Q Timer** is capable of 7 functions (**FUNC1**,..., **FUNC6**, **DT**) and each function has a related set of positions for up to 3 servos. When using the 5-function mechanical assembly, only one servo is used and two of these functions (**FUNC5** and **FUNC6**) remain unused. The *Timer* is programmed to have the disc assuming the same position for **FUNC4**, **FUNC5** and **FUNC6** so that once the 4<sup>th</sup> arm is released, the disc remains in the same position (whatever the activation time programmed for **FUNC5** and **FUNC6**) until **DT** activation (when the last step releases the 5<sup>th</sup> arm i.e. **DT**).

- assign to **POS5** and **POS6** the same position assigned to **POS4**. During timing, the servo will move from **START** to **POS4** releasing the first 4 arms. It will remain steady until reaching **DT** that will release the 5<sup>th</sup> arm, no matter the activation time programmed for **FUNC5** and **FUNC6**

## Wirings

