Quick Start Guide

Power On/Off
To power up the TC-Timer, press and hold the On/Off button for 2 seconds. The Manual Start button will simulate a remote start, and is helpful in learning how the timer works.

Power On PhotoGates A & B
Press and hold the On/Off button until TC-PhotoGate A beeps, then buzzes continually. For TC-PhotoGate B, hold button until desired distance is selected.

Line up PhotoGates A & B
Align TC-PhotoGate B to A until it stops beeping. Find eye center by rotating B to one side until A starts beeping then repeat to the other side. Set B in middle of these two positions.
Operating Your TC-Timer

**SEQUENCE** displays the order (sequence) of new timing windows. **SPLIT** displays the time from the start to the split.

**SPLIT INTERVAL** displays the time from split to split. **SPLIT #** displays which split time is being shown on the clock.

**ATHLETE** displays the athletes identifying number. **CUM** displays the cumulative (total) time from the start to the finish.

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**Power On/Off**

To power up the TC Timer, press and hold the **Power On/Off** button for 2 seconds. The data from the last session is still in memory until memory is cleared. The clock is now ready to receive radio signals.

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**Sequence #**

**Sequence #** is a chronological counter that helps the user keep track of where he is when using **Memory Review**.

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Page 2 intentionally left blank
Memory Clear
Press and hold both buttons at the same time for approximately four seconds. Memory will clear and the clock will be reset to Sequence #1. **All past times will be lost.**

New Athlete
To start a new athlete, press the New button and a reset clock is shown. If in Memory Review, use the up arrow to get to the latest sequence which will show a reset clock. (This is the only time the Athlete # can be adjusted.) To adjust Athlete # see page 4.

Athlete Memory Review
To review times, press the Memory Review buttons. Holding down either button will engage the high speed scroll. The sequence will adjust accordingly. The Athlete # will be displayed also.

Split Review
Press Split/Scroll buttons to review an athlete’s split times. (up to 9 splits possible) The Split counter will adjust as each split is viewed.

Athlete # Adjust
Athletes can be assigned an identifying number. This may only be assigned before the clock starts for that athlete. (if in Memory Review, use Up Arrow to get to the latest sequence) Use Split/Scroll arrows to assign an Athlete #. After the desired number is reached, the start will lock the Athlete # to the time. If no adjustment is made for the next athlete, the same Athlete # will be assigned.

Manual Start
Press button to manually start, split or finish the timer. (Similar to a stopwatch) Using this function reduces the accuracy of an athletes time due to human error. Using the Manual Start button is a good way to learn how the system functions.

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TC-PhotoGate Setup

Set up the TC-PhotoGate units as displayed below at the START, SPLIT or FINISH location.

Turn on TC-PhotoGate A by pressing and holding the power button for 2 seconds, it will beep then buzz continually, the green LED will also flash.

Point TC-PhotoGate B in the direction of TC-PhotoGate A.

Turn on TC-PhotoGate B by holding down the On/Off button until the desired power level is selected. The blinking green light indicates the unit is on. TC-PhotoGate B emits an infrared (IR) light beam that is detected by A. TC-PhotoGate A has three IR power settings indicating the maximum possible distance between TC-PhotoGates A & B.

- **1 beep:** low power (10 Meters - 1000 hours battery life)
- **2 beeps:** medium power (22 Meters - 750 hours)
- **3 beeps:** high power (38 Meters - 250 hours)

Application Tip

1. For the most accurate and repeatable results, set the IR light beam at the belt height of the athletes. This will be high enough so that the legs of the athletes do not break the IR light beam. This is also low enough that swinging arms and hands of the athlete will not prematurely break the IR beam.

2. To avoid unnatural hand reaching to break the beam, set TC-PhotoGates A&B 15-30 feet apart with the running lane in the middle. Set the finish beam so it is not on a visible line. This will make it difficult for athletes to know where to reach out and break the beam with a hand, which can result in a faster time.
The timer is available in two forms, *TC-Timer* and *TC-Timer USB*.

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### Computer Communication

If *TC-Timer USB* is purchased, it will have a computer USB port next to the antenna. This allows the user to export data from the timer to a PC. To export data, plug USB cable into the *TC-Timer* and connect to computer. Open *TC-Results Center*, then press and hold the Download buttons.

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### Test Identification Number (T id)

*T id* numbers allow the user to add a test identification number to a specific group of times. Once the identified data is downloaded to a computer, the test times can be organized and given a label, i.e. Test # 1 - 40 yard dash. For tests like the bench press or box jump, the weight or number of jumps can be entered into the *TC-Timer*. *T id* numbers (0-9) must be input to the *TC-Timer* when a mode is selected.

With the *TC-Results Center* software the user will be able to customize timing data into:

- Athlete profiles comprising of chosen tests
- Results by test type
- Test rankings

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**T id** is only useful with the computer interface. If **T id** is not shown, user may still use the modes, but cannot enter test ID numbers.

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### TC-Timer Modes

Use the *Mode* button to select the desired mode. Once mode is selected, and the test number is assigned, press *Enter* button to use that mode.

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### Chronograph Mode

**CHRON** mode is the principal mode used for the majority of timing applications. When powered on, the *TC-Timer* automatically enters this mode.

Description continued on pages 10-11.
The first time the *NEW* button is pressed it will advance the *SEQUENCE* and will clear the clock.

The second time the *NEW* button is pressed it will enter *Memory Review*. The user is then able to navigate the Timers’ memory using the *Up* and *Down* arrows. To review split times use *Split/Scroll* arrows.
1/1000th Mode

1/1000th mode is similar to the CHRON mode but displays 1/1000th of a second resolution. This mode is useful in timing short spans between the start and finish where extra resolution is needed for differentiation. All of the functions work the same as the “Chron” mode.

**Rule:** You must have at least 0.2 seconds of time between start PhotoGate and finish PhotoGate.

At 20 mph that is ~50 inches or 0.2 sec. At 100 mph that is ~250 inches or 0.2 sec.

KPH/MPH Mode

KPH/MPH mode calculates kilometers per hour and miles per hour.

Use **Up Split/Scroll Arrow** to alternate between KPH and MPH.

Scroll to set the number of inches or mm between the two Photo-Gates.

When passing through the start and finish gates a time will be seen on the bottom display and MPH on the top display. To see mph from split to finish, or start to split, the **TC-Timer** will show mph on the **Split Interval** display line.

Count Mode

Use the **Manual Start** button to count the number of reps.
**Frequency Select Mode**

*FREQ* mode allows the user to change the radio frequency of the timing system. This allows two or more TC Systems to work in the same location. After setting the TC-Timer radio frequency (0-4), the frequency must also be changed to match in *TC-PhotoGate A*. This is done by removing the aluminum case and pressing down the appropriate switch on the blue switch. More than one switch cannot be down at the same time. (All switches up is FREQ 0)

**Warning:** Be sure TC-Timer is at least 10 feet away from other TC-PhotoGate systems in use so other signals are not picked up by timer.

**RSSI Mode**

*Relative Signal Strength Indicator*  
RSSI Test Mode allows you to self diagnose the distance capability of reception or problems with signal reception.

**Problem** I occasionally miss a start or stop signal.  
**Solution** Check RSSI to see if their is radio interference at your location. Indoor interference could come from equipment i.e. machines and computers, this may be the case if your RSSI reads 30/40 or higher without your *TC-PhotoGate A* transmitting.

**Problem** I need to time distances over 1000 feet, and I want to know if I will get reliable reception.  
**Solution** Set up your *TC-PhotoGates* and have someone break the beam every three seconds. Go to the distance you need, the RSSI needs to read at least 29/35.

**Problem** I have noise or other users on my frequency. (38/50)  
**Solution** Try frequency 1, 2, 3 or 4. (Must also be changed in *TC-PhotoGate A*.)

**Troubleshooting**

**Problem** one of my timing units does not power up.  
**Solution 1** All units require you to press and hold the power button for at least 2 seconds to initiate the power up sequence.

**Solution 2** Check the battery. The units will warn of a low battery by a red flashing LED on the *TC-PhotoGate A* or B (the *TC-Timer* has a low battery symbol on the LCD). The units will work for up to 20 more hours and 5 for the *TC-Timer* with a low battery. If the unit shows no sign of turning on, check for dead battery.

**Problem** My timing system is setup correctly, but the *TC-Timer* won’t receive a signal.  
**Solution 1** Check to see if all the system components are on the same radio frequency. See FREQ on page 14.

**Solution 2** See RSSI on page 14.

**Problem** My tripod is broken. (60 day warranty, $35 replacement)  
**Solution** If a single leg is broken, order a new tripod and save the two good legs for future replacement. (the legs unscrew from the tripod)

If you are still not sure the system is functioning correctly, call us at 801-572-5540

“I have found a problem, what do I do now?”  
If the system has a defect return to Browe Timing Systems.
Battery Replacement

**Timer:** Remove the battery cover on the lower back of the unit. Install fresh AAA alkaline batteries (Energizer Duracell). Replace the battery cover.

**TC-PhotoGates A & B:** Remove the set screw from the base of the unit. Apply pressure to the front of the unit between the lens and buzzer to slide the unit out of its case. Replace batteries (AAA). Place the unit back into the case and replace the set screw.

Caring for your system

The TC system is water resistant but not waterproof. The general rule is if you can train in the weather conditions, the system can function. If it is raining too hard to train, take the system out of the rain. If components get wet, let them air dry before putting them back into the foam holder bag. If components get really wet, remove batteries until dry.

Specifications

**Radio:** Radio transmission distances up to 1000 feet can be received in line of sight applications. Distances can be reduced if TC-Timer is in close proximity to electric motors and computers or TC-Timer is close against a body.

Battery Life: TC-Timer 50 hours, TC-PhotoGates 500
Timing Accuracy: 1/1000th of a second
Radio Switch Accuracy: 0.0001

Warranty

The BROWER TIMING SYSTEM is backed by a 1 year warranty covering manufacturing defects. Service, whether covered by the warranty or not can be performed and returned quickly. (Express incoming and return shipping charges are not covered by warranty.)

*Tripods wear out with use are only covered for 60 days by the warranty.*
FCC Regulatory Compliance Information

FCC ID: XVABTS

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

CAUTION: Any changes or modification not expressly approved by Brower Timing Systems could void the user authorization to operate this equipment.

TC-PhotoGate A compliance labeling

This device complies with Part 15 of the FCC Rules:
Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. this device may accept any interference received, including interference that many cause undesired operation.