CE 0408 ⚠

BROWER
Timing Systems

Brower Timing Systems
BIB ID XS System
2011

User's Manual

Electrical Specifications

Radio frequency	433.425MHz 25kHz spacing.
Modulation method	FM.FSK. 32 Channels
Temperature rating	- 30 degrees C.
Receiver sensitivity	.18 uV
Transmitter power	Low 25 mW, High 200 mW
Transmission distance	4 miles line-of-sight
Memory capacity	all components store 255 skiers times

Warranty

All products have a 1 year warranty. Brower Timing will repair or replace any failed product at no charge for 1 year from time of purchase. Damage caused by user is not covered by the warranty.

Customer will pay the cost to ship to Brower, Brower will pay for return shipping.

Diagnose Malfunction and Return Procedure

Go to www.browertiming.com to complete the return checklist.

1- Determine which component is failing and call or email Brower Timing to confirm that it must be returned.

2- To reduce shipping cost, send only the failed component packaged in the smallest box available.

3- Include all your contact information and Visa or Mastercard number with expiration date and last 3 digits on the back of the card. Also it is very important to write a description of the problem

4- If shipping from outside of the USA send by Post office and label the package "Return for repair, Charge no duties". Expected turnaround time is 16 days, and shipping cost will be minimal.

5- If a faster turn around time is required (8 days) 2 way shipping costs can reach $300.00 to some countries.

6- Send all repairs directly to Brower Timing Systems.

INTRODUCTION

Congratulations!

You have just purchased the XS System. The XS System is a wireless timing system that synchronizes all of the units to a common Time-of-Day (TOD) reference, and synchronizes all of the radios to a precise common frequency. This provides the XS System with unprecedented accuracy and reliability.

Benefits of XS

- ☞ Life time calibration.
- ☞ The XS System re-calibrates itself every time it is synced, eliminating the need for future tune-ups.
- ☞ Full time back-up timing
- ☞ The *Wand* and *Photocell* save all of the times independent of the *Timer*. To access these times use the *USB Interface*.
- ☞ Superior battery life.
- ☞ Simple reliable use.
- ☞ All options are set from the *Timer*. The syncing process then programs the *Wand* and *Photocell*.
- ☞ Exact crystal synchronization.
- ☞ With precise crystal matching, (+/-) 1/1000 second accuracy can be maintained from unit to unit for over 4 hours, over the full range of temperatures experienced in skiing.

Getting Started

The best way to learn how to operate the XS System is the hands-on method.

Set the system up in your home or office. Start pushing buttons as you read the manual. Read the manual front to back and work through each page. Try the "what if's?" (What if a skier falls or false starts?) to see how the *Timer* responds. On the back of the *Timer* are notes summarizing how to use the system.

BUILDING SNOW SCREWS

The XS System comes with mounting fixtures for on-the-hill installation, however, the snowscrew bases and shafts are not included. The user can use bases that are compatible with their existing drills and wrenches.

Mount system according to drawing below:

Expansion Lug

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23"

15"

15"
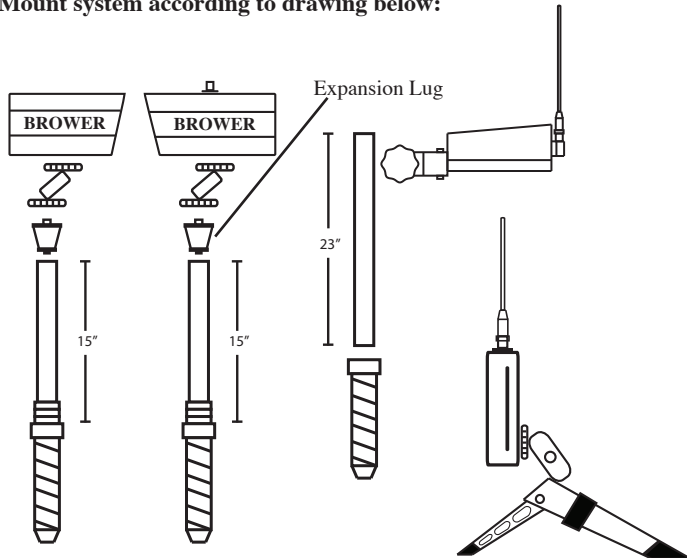
Instructions for building stands for the XS System

- Use slalom bases (new or used) that are compatible with your team's drills and wrenches
- From one length of 1.25" diameter slalom pole, cut shaft to make 3 pieces as diagramed
- Use hinges for Beam stands for added safety
- For the *Wand* stand, use the 23" shaft; it is best to remove the hinge.
- Insert *expansion lugs* into the end of the slalom pole and tighten setscrew with allen wrench counter clockwise

The *Timer* stand can be set on a table or be strapped to slalom pole or tree.

Replacing Batteries & Maintenance
USE ONLY ALKALINE BATTERIES

Expected Battery Life

Timer: 125 hours
Wand: 300 hours
Photocell: 175 hours
IR Emit: 250 Hours - Low setting – 60 ft.
220 Hours - Medium – 140 ft.
100 Hours - High – 60 ft.

Changing Batteries

DO NOT INSTALL BATTERIES BACKWARDS!!!

Timer: Remove the 4 screws holding the backplate. Attach tripod to the backplate. Remove backplate to reveal the batteries. Replace with: 3 AA Energizer Alkaline batteries.

Wand: Remove the 4 screws holding the bottom plate and open the *Wand* like a book. When removing the battery brace make sure to loosen the set screw at the base of the back with an allen wrench. Replace the batteries and re-assemble in reverse order. Replace with: 3 AA Energizer Alkaline batteries.

Photocell and IR Emit: Remove the setscrew on the bottom of the unit. Press on the face of the unit below the lens to slide the guts of the unit out of the housing. Replace with: 3 AAA Energizer Alkaline batteries.

Maintenance

The *Photocell* and *IR Emit* are susceptible to water infiltration in heavy rain or wet snow. If water does get inside, remove the housing and remove the batteries. Let stand until dry. Replace.

Program 8
(CrOS) Skier or Boardercross

This program works the same as Program 7 (biCE) but allows for "Group Starts", up to 20 at a time. The only difference is in how the bib #'s are entered into the *XS Wand*.

XS Wand Instructions

Enter the first bib # and press the PACE button, three dashes will appear across the display. Repeat this sequence until all the bib #'s are entered. Press the ENTER button to activate the wand stick for a start.

Program 9
(CL) Day Time Input

This feature allows you to enter the Day Time into the *XS Timer* so that all the timing information sent through the *XS USB Interface* to the computer will be synchronized to the Day Time. The computer will then display start, split, and finish times as day times down to 1/1000 of a second. The backup information downloaded from the XS *Wand* and the XS *Photocell* will also be in Day Time format.

Setup

To set the Day Time into the *XS Timer*

- ☞ Turn on the *Timer* and press the mode button to bring up the Program selection option.

- ☞ Use the up arrow to go past Program 8 to the "CL" or Clock input. You will see the bottom left digit blinking 0.

- ☞ Use the up arrow to scroll to the actual day time hour (1 – 24).

- ☞ Next use the horizontal arrow #3 to select the minute digits, and scroll to the actual minutes. Follow the same procedure for seconds.

- ☞ When the time on the XS *Timer* is exactly synchronized with the day time, press the ENTER button, the display will show "LOC" (lock).

- ☞ The Day Time is now entered.

- ☞ To exit this screen press ether ENTER, CLEAR, or MODE

Training Tips

Assign a training number to all of your skiers for the entire year. Choose a numbering system that will help you remember what number belongs to each skier. For example, J0 racers could use numbers 0-9 and J1 racers could use 10-19 and so on. If you know the skier's number, the *Timer* will tell you in advance who is on the course.

Timing is most beneficial if the skier can see his or her time at the bottom of the course.

Note

The display counts by seconds while a skier is on the course. This time is not official until the TOD, which is transmitted by the finish, is subtracted from the start to give 1/100 second time on the *Timer* display and 1/1000 second resolution when downloaded.

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COMPONENT SETUP

Attach the antennas to the *Timer and Wand* and mount units according to diagram on page ii.

To avoid radio interference when using a two way radio, do not press the talk button within 5 feet of the XS Timer while a timing signal is being received.

Power On

The *Timer*, *Wand*, *Photocell*, and *IR Emit* are all powered on by pressing and holding the power button for 3 seconds. All components will respond with a beep. The *Wand* and *Photocell* are now waiting to be synced and will not operate until they are synced (page 5).

Memory

The memory in the *Wand* and *Photocell* remains after powering off but is cleared when re-synced. The *Timer*'s memory must be manually cleared by pressing the "CLEAR" button for six seconds. All of the components will store 255 skiers times and splits. After the memory is full, times will continue to show, but not be saved.

Timer Setup

When the *Timer* is powered on, a time-of-day (TOD) reference is set. This reference is then synced to the *Wand* and *Photocell*. If the *Timer* is powered off, the TOD reference is lost. If the *Wand* and *Photocell* are powered off the reference is also lost. Therefore, leave your system on all day. The *Timer* can re-sync a *Wand* or *Photocell* at any point, even in the middle of an event.

Wand Setup

After the *Wand* has been synced it will display the program number. Screw the *Wand Stick* into *Wand* and firmly press the fiberglass extension into the *Wand Stick*.

The Group Finish "GrP"

This function handles the situation when 2 or more competitors are going to cross the finish line within 2 seconds of each other.

The *#9* button will put the timer in a special state, the GrP state. The bottom display line will show "GrP". As a group of competitors approaches the finish, the first competitor through will get an Electronic finish, the XS *Timer* will then disable its radio receiver so that no more finishes are allowed to come through.

The finish official then presses the Manual Finish button (*#8*) as the second and third competitors cross the finish line, and then the Clear button to exit the GrP state.

The groups finish order should be noted. The finish official will then assign the finishes to the group's bib numbers.

Note: Both the *#2* and *#0* button will take the XS *Timer* out of the GrP state.

Memory Review:
At any moment you can review the past times in memory by pressing the *#5* or *#7* button. If a new start or finish is received by the *XS Timer* the display will automatically exit out of memory.

Out of Order Finishes and DNF's

The XS *Timer* will allow up to 25 competitors on the course at a time. This program handles passes and DNF's as part of normal operation. To accomplish this, the user must be aware of the following operational rules:

Rules of Operation

☞ The **#2** or ASSIGN FINISH button will always assign the oldest unassigned finish to the bib # displayed in the Active Bib # slot.

☞ The **#6** or DNF button also follows this rule.

☞ The **#3** or FALSE FINISH button will delete the oldest unassigned finish. If you use the **#4** or block button to block out unwanted finishes you will never have to use this function.

Note

It is best to ASSIGN finishes as soon as they occur; the exception is when you have a group of competitors finish at the same time.

To assign an out of order finish to a bib #, press the **#5** or **#7** button, then scroll to the finished competitors bib # and press the assign **#2** button.

The XS *Timer* will always match the bib # in the Active Bib # slot with the oldest unassigned finish.
Follow the same procedure to DNF a bib #, except press the **#6** button.

To delete an Unassigned Finish that was unintended, press the **#3** button, the display will flash "FFin", Press the **#0** button to cancel, or the **#3** button again to delete the Unassigned Finish.

Warning: A false Unassigned Finish that is not deleted will match the wrong finish time to all the remaining competitors times.

Photocell Setup and Alignment

After the ***Photocell*** has been synced it will beep every four seconds to indicate that it is ready to be lined up with the ***IR Emit***. Line the ***Photocell*** and ***IR Emit*** up according to the diagram.
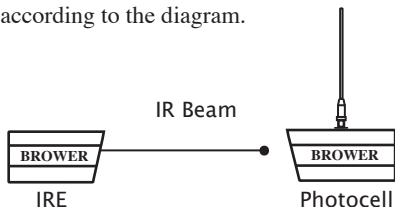
When units are properly aligned, the ***Photocell*** will only buzz when the beam is broken. *Fine tune the alignment with the **IR Emit**.*

IR Emit Setup

The ***IR Emit*** has three power settings. These settings allow for different finish line widths. To set the power level, press and hold the power button for the desired number of beeps. The blinking green light next to the power button indicates that the unit is on.

IR Emit Power Levels

1 Beep - 10 Meters
2 Beeps- 20 Meters
3 Beeps- 30 Meters
Use a higher power setting in heavy snow.

Low Battery Warning

All of the XS units will indicate when the batteries are getting low.*

Timer- When powering unit on or off, hold the ***POWER*** button beyond the beep. The display will then show ***BATT GOOD*** or ***BATT BAD***.

Wand- When powering unit on or off, hold the ***POWER*** button beyond the beep. The display will then show ***BATT GOOD*** or ***BATT BAD***.

Photocell- A green LED, next to the power button, will flash if the battery is good. A red LED will flash if the battery is low.

IR Emit- A green LED, next to the power button, will flash if the battery is good. A red LED will flash if the battery is low.

* All components will work for 10 hours after first low battery warning.

System Setup and Sync

All of the system setup is done through the **_Timer_**. This information is transferred to the **_Wand_** and **_Photocell_** when synced.

Choosing Settings

Press the **Mode** button to cycle through the Options. Use the ⬇⬆ buttons to view option settings. Press the **Enter** button to choose settings.

Option Menu

CH - Channel 0-31.
This sets the system to one of 32 isolated frequency channels. Systems set on different channels will not interfere with one another.

Pr - Power of transmission.
The option's settings are:

	SL*	DH	ALL
Wand	low	high	high
Split	low	high	high
Finish	low	low	high

Use the SL option for slalom length courses. If longer transmission lengths are required use the DH setting. If timing from the top of a long GS or DH, choose the ALL setting. Using the proper setting conserves battery life.

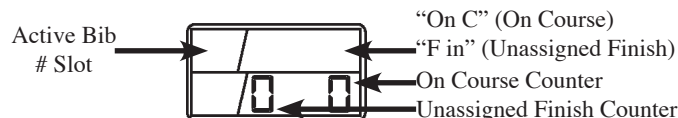*The SL option will work for most training hills that are under 35 seconds.

Program 7
(BICE) DH Mountain Bike & Ski Events

Experience using Program 1 is necessary. This program is used for events where the competitors wear Bib numbers.

The bib # of each competitor is entered at the start into the XS **_Wand_**, and again when each competitor finishes when passing through the XS **_Photocell_**. The bib # is not entered into the XS **_Photocell_** but into the XS **_Timer._**

Display Functions

Active Bib # Slot

"On C" (On Course)
"F in" (Unassigned Finish)
On Course Counter
Unassigned Finish Counter

Button Functions

Assign Finish-	**button #2**
DNF (did not finish)-	**button #6**
Finish out of order -	**button #5, #7**
Group Finishes -	**button #9**
Manual Finish -	**button #8**
False Finish delete -	**button #3**

Timer Instructions

"On Course" and "Unassigned Finish" example:

When the first competitor starts, you will see his bib # and the symbol: "On C" on the top line of the display. The "On Course counter" will show a "1".

When the first competitor finishes, you will see a "F in" take the place of "On C" on the top display. The "Unassigned Finish counter" will now show a "1", and the "On Course counter" will show a "0". This indicates that there is one unassigned finish, and no competitors on the course.

To assign the finish to the competitors bib #, in this example with only one competitor, press the #2 button. A finish time will now appear next to the bib #. The "Unassigned finish counter" and the "On Course counter" will also reflect this change.

Program 5
(Dual AUTO)

This program is for recreational races and small training groups.
ONE SET OF SKIERS ON THE COURSE AT A TIME.
No operator is required.

Entering Bib Numbers

- ⚐ When the XS System is set to Mode 5 the display on the *Wand* will flash "**r E d**".

- ⚐ Enter the bib # of the skier in the Red lane. The display will now flash "**b L U**"

- ⚐ Enter the bib # of the skier in the Blue lane. The display will now show ¯‒_.

- ⚐ The skiers are now ready to start.

If a skier is racing as a single, do not enter a bib # for the empty start gate, just press ENTER. At the finish a DNS will appear on the red or blue line on the *Timer*.

Notes

Only 1 set of skiers can be on the course at one time.
False starts and DNF's are handled automatically by sending the next set of skiers. For a false start just re-enter the same bib #'s.

Program 6
(Dual DIFF)

This program is for events where the desired result is the time difference between a Dual finish.

No start *Wand* or start *Photocell* is used. Set up the finish like a Dual Finish.

As 2 racers are finishing, the fastest racer's Display (Red or Blue) will show 00:00, the slower racer's display will show the differential time.

If a racer does not finish, press the "DNF" button on the *Timer*. The *Timer* will also automatically DNF a racer that has not finished after 10 seconds. The *Timer* will then display all zeros and is then ready for the next two racers.

P# - Program
The options settings are:
- P1- FIFO – First In First Out.
- P2- PACE – Pace setting for hands free use.
- P3- AUTO – Single skier timing, hands free.
- P4- DUAL FIFO – Fist In First Out Dual.*
- P5- DUAL AUTO – Single skier per lane.*
- P6- DUAL DIFF – Finish Differential.*
- P7- BICE – DH Mountain Bike & Ski Event.
- P8- CROS – Skier or Boarder Cross.
- P9- CL – Day Time Input.

*Additional Dual components are required for dual programing.

SY - Sync
The option settings are:
- Start - Use for *Wand* or a *Photocell*
- Finish - *Photocell*
- Split - *Photocell*

Syncing the System
*Choose settings before syncing, Channel (**CH**), Power of Transmission (**Pr**), Program (**P#**) and Day Time Input (**CL**) see page 20.*

- ⚐ Power on all units

- ⚐ Select **START** from the syncing options and press **Enter**.

- ⚐ Connect the *Wand* to the *Timer* with the **Sync Cable**. The *Wand* will beep when sync is complete and shows zeros.

- ⚐ Press **Mode** to re-enter the set up screen.

- ⚐ Select **FINISH** from the syncing options and press **Enter**.

- ⚐ Connect the *Photocell* to the *Timer* with the **Sync Cable**. The *Photocell* will beep when sync is complete.

- ⚐ Repeat steps for splits as needed.

A Photocell synced as a finish must be used as a finish. This is also true for splits.
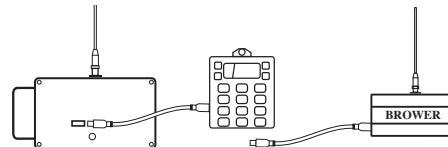
After the first unit is synced, the **CH** and **Pr** options will no longer appear in the settings menu.

Program Introduction

The XS system has nine program options. While each program has its own instructions the following are functions that are common to all of the programs.

Enter Bib Number

The first step in all of the programs is for the racer to key in their bib number (1-255) into the *Wand* then press **Enter**. The *Wand* will then triple beep when the racer can start. The *Timer* and *Wand* will only display up to bib # 99 but will store and transmit up to bib # 255.

Memory Review of Timer

All of the times are stored in the *Timer*. These times may be reviewed at any point by pressing the ↓↑ buttons. The *Timer* will continue to receive times even when the stored times are being reviewed.
To review split times use the ⇄ buttons adjacent to the times.
Advancing the memory (when split times are stored), with the ↓↑buttons, will always display the finish times.

Radio Signal Blocking

To block an unwanted finish signal from triggering the *Timer*, press and hold the **Block** button throughout the unwanted finish signal and for 3 seconds after. This allows the operator to block any signals that are triggered by accident, such as a stray skier.

Manual Finish

A skier may be manually finished by pressing the **DNF** button on the *Timer*. Use this function to finish a skier if the finish line has been disabled. The display will show DNF but the time will store like a split. (pg. 7) and is viewable through the *USB Interface* on the computer.

Program 4
(Dual FIFO)

Dual Lane FIFO (Multiple Sets of Skiers)
Program 4 is a dual version of Program 1 and operates in the same manner.

Entering Bib Numbers

- When the XS System is set to Mode 4 the display on the *Wand* will flash "**r E d**".
- Enter the bib # of the skier in the Red lane. The display will now flash "**b L U**"
- Enter the bib # of the skier in the Blue lane. The display will now show ¯–_.
- The skiers are now ready to start.

Up to 4 sets of skiers can be on the course at one time.

If a skier is racing as a single, do not enter a bib # for the empty start gate, just press ENTER.

Notes

Program 4 is similar to Program 1. A skier that will not finish, or a false start, must be DNF'ed within 20 seconds of the other skiers finish.

You can DNF a racer from the *Timer* or the *Wand*.

Timer- To DNF a racer in the red lane press the "BlockWindow" button. To DNF a racer in the blue lane press the "DNF" button.

Wand- To DNF all running times in both lanes press the "DNF" button then enter the next skier's bib number. When the skier starts, all of the previous running times are DNF'ed.

Blue and Red lanes are stored and reviewed as sets on the *Timer.*

XS Display

Set Up:
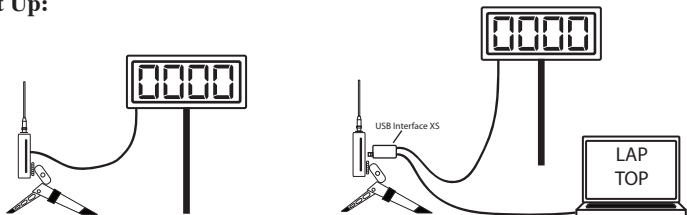
Plug the *XS Display* into the *Timer* or into the *USB Interface* when connected to a computer. The time of the finished skier will display for 10 seconds, then clear to 00.00, or be replaced with a new time.

In Dual Mode, a "Red" or "Blue" will flash on the display before each finish time displays. The *XS Display* is not designed to operate with Programs 7 & 8.
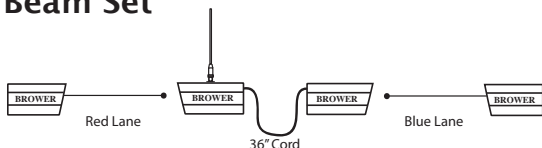
Dual Lane Components

Set Up:
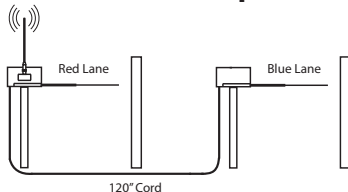
The *Dual Wand* is set up like the *BIB Entry Wand* (page 2). To power on, hold *Wand* arm open for 5 seconds. The unit will automatically power down after 2 hours of non use. The *Dual Wand* will beep 6 seconds after the arm is opened. Battery life on the *Dual Wand* is 1 year. Change at the beginning of each year.

Dual Beam Set

Set Up:

The *Dual Beam* is set up the same as the *Photocell*, connect the two eye's with the 36" cord.

Program 1
(FIFO) First In First Out

This program is used for racing events and training and has the capacity for 9 skiers on the course at one time. Skiers must finish in the order that they started.

Mount the *Timer* where the coach may view finishes and operate the *Timer*.

If a skier falls or goes off course the skier must be DNF'd. To DNF a skier press the "DNF" button on the *Timer*. Pressing the DNF button will only DNF the time on the top line of the *Timer*.

In the case of a false start, the phantom skier must be DNF'ed. If the *Timer* is not manned, press the DNF button on the *Wand* along with the next skiers Bib #. This will send a signal to the *Timer* to DNF all running times.

Caution!

If a fallen skier or false start is not DNF'd, the next skier will finish the fallen skier's time. If this occurs, push the "DNF" button to make up for the error.

Split

Up to 3 splits can be used in Program 1. Make sure not to mix up the split and finish *Photocell*s after they are synced.

Split Rule

The first skier must pass all of the intermediate split *Photocell*s before the next skier can start. Once all of the splits are passed, the next skier can start even before the first skier passes the finish.

Program 2
(PACE)

This program is great for ski teams that use the system regularly. **PACE** is a hands free program, no operator is needed to operate the **Timer**. Hands free operation is possible by the automated DNF function. Mode 2 handles DNF skiers automatically by establishing an "Arrival Window" which is a space of time in which the skier must finish. Program 2 is capable of timing up to 9 skiers at a time.

Arrival Window & Extent

The Arrival Window is the time period in which a skier must finish. A skier finishing a course will stop the timer only if he is within his Arrival Window. The Window Extent is the width of the Arrival Window. There are 3 Window Extents to choose from: 10, 14, and 18 seconds. Choose the desired extent from the **P2** program mode. Use buttons **2 & 3** to select option, then press **Enter**.

The **Wand** will limit how soon the next skier can start, depending on the length of the Window Extent. After the **Wand** has been synced the **Timer** cannot change the Window Extent.

Pacer(s)

A Pacer is the skier that will establish the average finish time. This average finish time will automatically establish the Arrival Window for the skiers to follow. The Pacer is the first skier out of the start and must press the **Pace** button and his Bib #. A flashing "**P**" will show on the **Wand**'s display. If the Pacer falls, the next skier must designate himself as a Pacer. Only the Pacer can be on the course when the Arrival Window is being established. In other words, the Pacer must start and finish before the next skier can start.

Example

If the pacer's finish time is 40.00 seconds, the extent is 10 seconds, then the subsequent skiers would be required to finish before (40.00-5sec)=35.00 seconds and no later than (40.00+5sec)=45.00 seconds.

Direct Link Transfer:
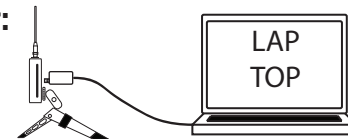
Times may also be downloaded to the computer via direct link. To do this, plug the **USB Interface** into the **Timer**, and the computer, then click on the "Get Memory" button. Any data already stored on the **Timer** will be displayed, followed by new data as it is received in real time.

Saving Data

To save the data from the **USB Interface Program**, click the "Write File" button. Name the file and save it to a desired location. It will be saved as a .txt file. New files can be created without interrupting direct link input. This file can now be opened with Notepad or Wordpad. From these programs the data can be copied into most spread sheet and word processing programs for further processing. Brower Timing does not support software beyond the "Write File" step.

Printing Data

To print data click on the "Print" button. Data will be printed to the computers default printer in landscape format.

Asterisk and DQ Flag

By clicking on a line in the **USB Interface Program**, a asterisk will appear to flag that line. Clicking a second time will cause a DQ to appear. A third click will clear the DQ on the line.

Back-up Timing

Use backup data from the **Wand/Photocell** to reconstruct errors during an event, ie; missed start or finish signals, starter not pushing enter on the **Wand**, skiers passing one another, a manual DNF if finish beam was knocked down, or a false finish. After printing back-up TOD's from the **Wand** and **Photocell**, compare them with the **Timer**'s printout and reconstruct times using TOD data.

USB Interface XS

(The *Interface* requires a computer with a USB port and Windows XP or Vista.)

Stand Alone Memory Transfer:

The *USB Interface* is used to transfer timing data from the *Timer*, *Wand*, and *Photocell* to a computer.

Slide the switch on the *USB Interface* to select ether *Timer* or *Wand*/*Photocell*. Plug *USB Interface* into the *Timer*, *Wand*, or *Photocell*, to upload the memory. The *USB Interface* will shine green to indicate that it is receiving power, and blink red when receiving data. *Do not unplug until red stops blinking*.

Data will be saved in the *Timer*'s memory until manually cleared. Data in the *Wand* and *Photocell* is saved until each unit is re synced, even if powered off. Data transfer will take up to 30 seconds if the *Wand* or *Photocell* have been powered off then on again.

The memory capacity of the *USB Interface* is 256 skiers and existing data is automatically cleared when plugged into the *Timer*, *Wand*, or *Photocell*. Data will be lost if it is not downloaded to a computer before the *USB Interface* is plugged into another unit.

USB Interface Program

Use the included mini CD to load the *Brower USB Interface Program* onto a computer, then open the file. Plug the *Interface* into the computer. Click the "Get Memory" button to download data to the *USB Interface Program*.

Data received from the *Timer* will show the total time of the skier. To see the day time starts and finishes click on the "Day Time" button. (see page 23)

Times from the *Wand* and *Photocell* will show the time of day starts and finishes. This is a built in back-up feature should the *Timer* miss any starts of finishes.

Adjusting the Arrival Window

- ☞ The *Timer* operator may manually shift the Arrival Window to better match the average finish times.
- ☞ Adjustments can be made to the Finish Window *after* the course is Paced.
- ☞ To adjust the Arrival Window press **Mode**, **Window**.
- ☞ The display will show.
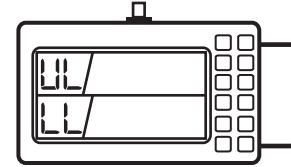
Use the ↓↑ button to shift the Arrival Window, then press **Enter**.

DNF

- ☞ If a skier's time runs past the Upper Limit set by the pacer, the skier's time will be replaced with DNF.
- ☞ If a skier finishes before his time has reached the Lower Limit, the skier's time will continue to run until it is either manually DNFed or it runs past the Upper Limit. At this time the display will be replaced with DNF.

Split

Up to 3 splits can be used in Program 2. *When using splits make sure that the Photocell at the finish is programmed as a finish and not a split*.

Split Rule

The first skier must pass all of the intermediate splits before the next skier can start. Once all of the splits are passed, the next skier can start even before the first skier passes the finish.

Program 3
(AUTO)

This program is for recreational races and small training groups.

ONE SKIER ON THE COURSE AT A TIME.

No *Timer* operator is required. False starts and DNF'S are handled automatically by sending the next skier. For false starts, just re-enter the same bib number.

Mount *Timer* where the skiers can view times.
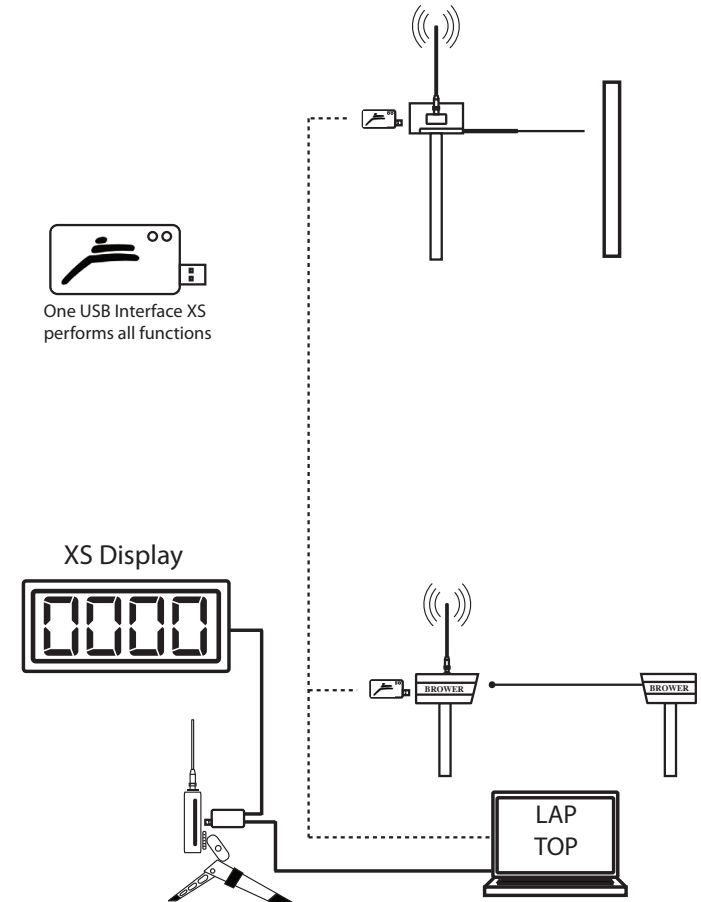
Caution!

If a new skier starts before the previous skier has finished, the previous skier's time will be canceled and a DNF will appear on the display.

Splits

Same as in Program 1&2.

SETUP FOR EVENTS

For event setup use Program 1 (FIFO)

One USB Interface XS performs all functions

XS Display

LAP TOP

Back-up times are always stored in the *Wand* and *Photocell*, whether needed or not.