Electronic Systems Planner's Guide

This guide is intended to provide an indication of the steps the planner must take when using the LEI SI systems. It does not give detailed information about the configuration and operation of the system.

www.leioc.org.uk

In this document you will find:

- A brief introduction to the Sport Ident System
- Instruction on the planning process for the electronic systems including
  - The preparation of the control boxes and
  - The time synchronisation of the control boxes
- How to use the systems on the day of the event
- A list of useful contacts
- A timeline to follow

If you are unsure at any point in the planning process, please ask. For level B and C events your controller should be able to help. For Level D and training events contact the Minor Events Co-ordinator.

Introduction

The SI (SportIdent) system is a sophisticated timing system. Each competitor carries a 'dibber' which contains a small memory device. That memory holds a unique serial number together with a list of the controls visited and the time of that visit.

There is a range of SI dibbers, from the original type 5 through to the SIAC dibber. It is important for the planner to appreciate the limitations of the dibbers (see table below). Most of the LEI hire dibbers are the older type 5 or type 8 together with a number of SIAC dibbers. If any planned course has more than 30 controls the planner must consider the provision of hire dibbers and possibly and exchange system for competitors with the older dibbers. The competitor must not be penalised because they have not purchased the correct dibber.

Dibber Type	5	6	8	9	10	11	SIAC
Number Range	1 - 499,999	500,000 – 999,999	2,000,000 – 2,999,999	1,000,000 – 1,999,999	7,000,001 – 7,999,999	9,000,001 – 9,999,999	8,000,001 – 8,999,999
Control Storage	30 + 6	64	30	50	128	128	128

The '+ 6' for type 5 controls means 6 additional controls stored with the code of the control visited but not the visit time.

SI also produces combined compass and dibber units (Comcards). These have either a Type 8 or a Type 10 chip

If additional dibbers are required contact the SI Co-ordinator who will provide the appropriate sets.

Each control station contains a precision electronic clock and an electronic circuit to communicate with the competitor's dibber. There are two types of dibber action

- For the non-SIAC dibber the competitor inserts their dibber into the control station which wakes up and sends power to the dibber unit. This allows the control station to send its number and the current time to the dibber and get the dibber's serial number from the dibber. A valid 'dib' is indicated by the control station beeping and a LED in the control station flashing.
- For the SIAC dibber the dibber is always powered during the event and picks up the time/control number signal broadcast by the control within 0.5m (about 18") of the control station. A successful dib is indicated by the dibber beeping and a LED flashing inside the competitor's dibber. Note that the SIAC dibber sends no information to the control station so its serial number is not recorded within the control and it cannot wake a control station. A SIAC dibber may be inserted into the control station causing it to behave like a type 10 dibber.

At the end of the event a competitor's dibber will contain a list of control numbers and the time at which those controls were visited. This list is uploaded by the results system and used to provide the event results.

The planner must remember that each control box is independent, so for the results to make sense the time clocks within each box must be synchronised. This is particularly important if two controls are close together, two controls are used to operate a time-out (for example at a road crossing) or if multiple controls boxes are used at a single control point (or start/finish).

At the start of the event the competitor's dibber must be prepared. This involves removing old events from the dibber memory. This is done by inserting the dibber into a clear station.

As the SIAC dibbers contain a battery, competitors should be encouraged to check their battery before each event. The SIAC Battery Test control will be in the event assembly area (typically at the start of the route to the start). When the SIAC dibber is inserted into this control it will:

- Normal beep to confirm the dibber battery is OK
- Multiple beeping means the battery is marginal.
- No beep means battery is flat. The SIAC unit can still be used as normal dibber (similar to type 10) when out of power. The battery in the SIAC dibber can be replaced if the dibber is returned to SportIdent.

Competitors with flat batteries should be able to hire a replacement dibber if they want to compete using contactless dibbing.

SIAC dibbers **must** dib the 'Check' station as this activates the dibber. A slowly flashing green LED on the dibber indicates the ON state. The competitor must not approach another control until they start. The dibber remains active until the competitor passes the finish control. Competitors must punch the finish as this control switches their dibber off.

The Planning Process

Early in the planning process the planner should find out which control set has been allocated for the event by looking at the kit rota on the LEIOC website. This will give an indication how many controls are available and the number of those controls. If the number of controls allocated is causing restrictions contact the SI Systems Co-ordinator to request extra equipment. Level D events (Winter and Summer Leagues) are allocated 30 controls numbered 31-60. Level C events (East Midland League events and similar) have sixty controls numbered 31-96 but with missing numbers in the upper range to avoid the numbers that are confusable when inverted (66, 68, 81, 86, 89)

The control sets will have been checked by the SI Co-ordinator, however they may have been used by several planners since the last check, so the planner should aim to have custody of the controls at least one week before the event to allow their own checks to be made. For planners running a level D event they must also ensure they have the appropriate results equipment (print box or similar).

The control sets come with combination padlocks to allow the control boxes to be secured. The club also has a gripple set which may be requested from the SI Systems Co-ordinator. This allows the planner more flexibility securing the control boxes (particularly useful in urban situations).

With SIAC dibbers the 'on time' of the control box becomes more important. A traditional dibber will wake up the control and register the time however a SIAC dibber requires the control to be awake to record the time. Note that the first competitor arriving at a sleeping box should notice that their SIAC dibber does not buzz/flash on arrival at the control; they can still dib in the traditional manner, however it is unfair to that first competitor who stands to lose several seconds each time this occurs. Therefore, it is important to ensure the control is on when the first competitor arrives. For events where the controls are put out on the day of competition the 'on time' should be 12 hours. For events where controls are placed the day before the competition and not visited by the controller on the day of the competition the 'on time' should be set to 24 hours (this will only happen for level C events and above). The details of how to set this up are below.

The planner must be aware that competitors may use the standard dibbers or contactless dibbers in an event. Users of standard dibbers may be at a disadvantage to those using the SIAC (contactless) dibber because of the speed through the control site. The planner must ensure that the control box sites do not allow the competitor to punch on the wrong side of an uncrossable barrier. For example, in an urban event if the control box is placed against an uncrossable fence the competitor can achieve a successful punch from either side of the fence.

Control Box Preparation

Each control set has a number of control boxes together with a set of start, finish, clear, check and Timemaster boxes.

The control box sets are sequentially numbered:

- Set A1 31-60
- Set A2 31-60
- Set C 62-96
- Set Maze 62-96 (subject to changes based on availability of controls)

All control boxes (except start and finish) are programmed as 'Beacon' controls which means they broadcast the signal required by SIAC dibbers. Some controls in the Maze set may not be set to beacon mode so care should be taken when using them.

The Timemaster box will have a service key, instructions and a connector attached via a cord.

The Timemaster in sets A1 and A2 has an on time of 12 hours, the one in set C has an on time of 24 hours (see label on box).

Sets A1 and A2 have a SIAC battery check control.

- Upon receipt of the control sets lay the controls out on a table.
- Use the purple service key to power up each control. If the box beeps several time rapidly when woken the battery is dangerously low and the box should not be used. The display on the underside of the control box will sequentially show a series of values.
    1. Control number (preceded by 'BC' which means beacon) – Should match the number printed on the control box
    2. Time – Ignore this for now
    3. Battery – this should show a value greater than 310 -
    4. Software version – ignore
- Use the purple service key to power down all boxes.

Any control box which has a low battery must not be used for the event and must be returned to the SI co-ordinator who will attempt to supply replacements.

Control Box Synchronisation

A maximum of 2 days before the event the controls should be synchronised. This time scale is important as the clocks in each control can drift out of sync

- Lay the all controls out on the table.
- For level C and above where both an A set and C set are in use choose the Timemaster with the desired 'on time' (12/24 hours as explained above).
- Place all other time master controls to one side. IT IS IMPORTANT THAT ONE TIME MASTER IS NOT USED TO SYNCHRONISE ANOTHER.
- Insert the service key repeatedly into the chosen Timemaster until the display shows 'EXT MA'.
- Insert the coupling stick wide end into the Timemaster's dibber hole.

- At each control insert the other end of the coupling stick into the dibber hole until the 2 boxes are side by side. Wait till the control box beeps twice and flashes its red light. This indicates the time in the control and the 'on time' is synchronised to the Timemaster.

- If the Timemaster fails to beep, try the following actions:
    - Remove and re-insert the TimeMaster
    - Remove the Timemaster, turn the control box over and re-insert the TimeMaster.
    - Remove the Timemaster, use the 'Service Off' dibber to wake up the control box before re-inserting the TimeMaster
- Repeat this step for all control, start and stop boxes.
- Any boxes that fail to start or synchronise must be isolated and returned to the SI Equipment Officer for repair.
- Finally, there will be a purple 'Clear Backup' dibber in each set. Insert this into the start, check and clear boxes in turn. Each box should beep when it has cleared. This clears the list of dibbers seen by the box. (The start box/boxes will be interrogated by the download staff to upload a list of starters. This list is compared (by the download software) with the list of those who have downloaded to compile a list of runners still out on the course.)

- Use the purple 'Service Off' key to switch all controls off to save battery.

This completes the pre-event preparation.

Additional Preparation

The following tasks must also be done prior to the event.

- For level C events and above the Planner must send the XML course file to the download operator so that the download software knows the courses. Refer to the planning software guide (e.g. Purple Pen) for instructions how to obtain the XML file. For level D events the XML file should be sent to the person preparing the results. It may not be clear until the day of the event which of the results team require the file.
- If the event has multiple start locations the planner must ensure that start, check and clear stations are available for each start location.
- Control boxes may be sited on the day before the event providing they are locked and not in well frequented areas (not alongside paths).
- If control boxes are to be sited on the day before the event, contact the treasurer at least 2 weeks before the event to ensure insurance is arranged.
- The planner is recommended to punch every control box as they site them to ensure they wakeup correctly. The planner should start with a cleared dibber of appropriate capacity (or multiple cleared dibbers). A second SIAC dibber is a useful check to ensure the woken control is in 'Beacon' mode. The planner can download the dibber(s) once all controls are sited. This allows the planner a final check the controls are correctly programmed.
    - If the control is being left overnight and being visited by the controller on the day of the event use the purple service key to switch the control off and save the battery.
- For Level D events the planner is also responsible for download. A print station will have been allocated. The planner must ensure the print station is fully charged and its memory is cleared. Refer to the print station guide at http://www.leioc.org.uk/members/guides/
    - Extra printer paper can be obtained from the Treasurer or the SI-Coordinator.
- We have NO insurance cover for any equipment left in cars overnight. So please keep in your house and load the expensive boxes, printer and dibbers just before you leave Equipment should always be transported in a locked part of the car out of sight.

On the day

The planner is responsible for setting up each control site prior the event start (though they may co-opt assistants).

The picture shows the ideal control with control box, (a separate control number card is not needed for our events) and kite. Back-up punches are not now included with the equipment but may be obtained from the SI Co-ordinator for level A and B events.

Note the kite is looped onto the control number card hooks. Do not trap the kite cord between the control box and the stake clip. This has been shown to strain the clip and be a contributory cause to control box LCD failure (when the LCD is rear mounted).

Please do not press on the control box when pushing the stake into the ground (again this has been shown to be contributory to control box LCD failure.

If you need to leave control boxes out overnight the following guidelines must be observed:

- The control site must be away from any public area (e.g. not on foot path)
- The control box must be locked to something solid
- The treasurer must be informed to ensure the insurance is validated.

Wherever possible all controls should be locked to something solid.

If a control box fails on the day:

- Simply replace the offending box with a spare.
- There are a number of sleeves and a marker pen in each control set which can cover up the incorrect control number of the replacement. Write the correct control number on the sleeve. The spare will upload the incorrect control number (when compared to the number in the download software).
- Do not attempt to get the box re-programmed, report the incorrect control number to the download staff who will setup an ‘alias’ so that the download software recognises the change.
- Segregate and label the failed control and pass it to the SI co-ordinator so it can be repaired.

A clearly labelled SIAC battery check control should be placed in the assembly area (preferably by the start of the route to the start).

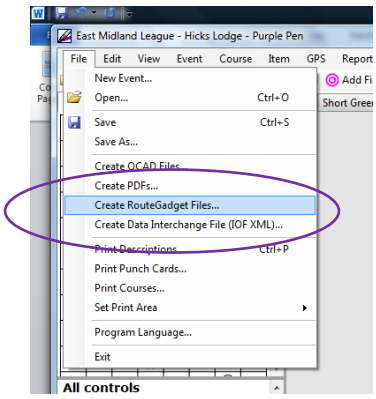
After the Event

The planner is responsible for gathering all the equipment used on the course and returning it to the SI Co-ordinator (or if instructed the planner of the next event). Except for night events, equipment should not be left out for collection the following day. The planner must notify the SI co-ordinator and the treasurer as soon as possible of any missing or failed equipment particularly if this will affect the next event.

The planner must check all controls are switched off using the 'Service Off' key. This is particularly important with the extended on times required by SIAC dibbers.

If it is clear that equipment has been stolen or vandalised the planner must report this to the Police and obtain a crime number. The planner must also talk to the Treasurer to provide details for an insurance claim.

As soon as possible after the event the planner should send the Route Gadget files to the download contact. See Appendix A – Useful Contacts. The files are obtained in Purple Pen by selecting File -> Create RouteGadget Files.



Appendix A – Useful Contacts

Role	Name	Email	Phone
SI Equipment Monitor & Coordinator	Chris Phillips	onecp47@gmail.com	07801 653 896
SI Equipment Repairs	Simon Starkey	simon.starkey@gmail.com	07963 124139
Minor Events Coordinator	Ursula Williamson	ursula.williamson.orienteer@gmail.com	
Treasurer	Roger Edwards	rwmhedwards@gmail.com	0116 212 7547
Results	Kevin Bradley	kevin@elya.co.uk	01664 424163
Results Printer Team	John Marriott Iain Phillips Alastair Paterson Roger Phillips	john.marriott@gmail.com iainwp@gmail.com abpaterson@hotmail.com rogerphillips34@gmail.com	 07813 013911
Route Gadget	David Caldingboel	dec421@yahoo.com	07914 192074
Purple Pen Support	Simon Starkey	simon.starkey@gmail.com	01530 456066 07963 124139

Appendix B – Planning Timeline

Time	Action
As soon as appointed planner	Obtain details of SI kit to be used.
2 weeks before event	Advise treasurer of controls to be left out overnight (time details and number of controls
2 weeks before event	Maps to printer
	Obtain SI kit(s) and check correct number of stakes, kites. Obtain gripples Obtain backup punches (Level A and B events) Check required on time for controls
1 week before event	Level C and above = XML course files to Download
	Level D – Recharge print station
48 hours before event	Time sync all boxes
Day before event	Ensure any controls not to be visited on event day are woken
Day of event	Ensure all event controls are woken Send Route Gadget files to download group

Simon Starkey
April 2021
V3.0