



SPORTident Active Cards (SIACs) are the next step in the evolution of orienteering, removing the need to slow down at controls. Your club can now organise orienteering events using Mixed Punching meaning that anyone with a traditional SI-Card will dib in the normal way, but those orienteers that own or hire a SIAC will be able to use it contactlessly. Competitors using a SIAC pass it within 50cm of the control and will receive a series of vivid flashes and loud beeps providing feedback that the visit has been registered. And the best bit is that your club can put on events that use contactless punching with all the SPORTident equipment that it already owns.

These notes give a brief overview and points to consider when planning and organising an orienteering event that caters for both traditional 'dibbing' punching as well as contactless punching. This is called **Mixed Punching**.

General Information

All existing SPORTident stations manufactured since 2005 (BSF7s and BSF8s) can now support contactless punching. The stations only require a simple firmware upgrade that can be managed by your club. You are then able put on events which offer the traditional orienteering experience for competitors with traditional SI-Cards, and the contactless experience for those using SIACs.

SIAC contain a battery and will work in direct punching mode (i.e. 'dibbing') even if the battery is empty. Direct punching provides a fall-back option to register at controls. In contactless punching mode the SIAC's optical and acoustic feedback signals confirm that a control code and timestamp have been successfully written to the card.

By default the contactless mode is turned off in the SIAC to conserve power. If contactless punching is not enabled at the start of the event the SIAC will work in direct mode and need to be dibbed at



each control. Once enabled, the contactless mode will turn off when the SIAC is registered at a FINISH or SIAC OFF station, or after around 20 hours.

A station programmed as a beacon needs to be woken up by dinging a SIAC or traditional SI-Card before it will work contactlessly. A Service OFF key will **not** switch a station into beacon mode. After a period of time from the last direct punch ('dib') the station will go back into sleep mode and need to be woken up again by a direct punch. This operating time can be set when the station is programmed.

When a card (traditional or SIAC) is dinged into a station, the data of that visit is recorded on both the card and the station. This data can be read from the station into the SiTiming (or AutoDownload) software as safety data so you can tell who has started etc. A contactless punch is only recorded onto the SIAC and is not recorded in the station. This means that you can only get full safety data from stations which are not in Beacon mode - so to know who has started you can read the CLEAR or CHECK stations, and if you need to know who has finished you will need to have a post-finish control.

SPORTident AIR+ mode can be compromised by disturbances caused by third party equipment. The active antenna of some GPS-watches can reduce the SIAC's sensitivity so as a general rule a GPS watch and SIAC should not be carried on the same arm.

SiTiming supersedes AutoDownload for timing orienteering events and you can download the latest version from <http://www.sportident.co.uk/sitiming/>. Your AutoDownload license will work in SiTiming.

Planning the course

- As SIACs can register at a control up to 50cm away, make sure the stations are situated in such a way that they can't be activated from the wrong side of an uncrossable feature, e.g. fence
- Avoid legs which pass the finish as any SIAC which gets within 50cm of a FINISH control will have contactless punching switch off.

Decisions before the Event

- Are you going to allow people to hire SIACs on the day – speak to SPORTident UK (hire@sportident.co.uk) if you would like to hire any
- SIACs are provided at a discounted rate for events that are using **SiEntries** to take pre-entries
- Will your START and/or FINISH be in contactless mode or will everyone have to dib? **Make sure it's clear in the final details so everyone knows what to expect.**



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Programming the SI Stations

As with traditional events, your BSF7 and BSF8 stations can be programmed using SPORTident Config+ to perform many different roles. Config+ can be downloaded from the SPORTident UK webpage at www.sportident.co.uk/downloads/. If this is the first time that the stations are being used for an event utilising contactless punching you may need to update the firmware in your stations (including your master stations) to **version 623 or later**. Firmware upgrade can be done using Config+.

While a direct punch resets a stations' operating time, contactless punching does not. Therefore, the operating time for the START, FINISH and CONTROLS should be set longer than for a traditional event. Config+ suggests an operating time of 12 hours for these stations but, in an event with Mixed Punching, you may feel that there will be enough direct punching with traditional SI-Cards to keep resetting the active time, so 2 hours may be sufficient. If you intend to wake the stations up before runners set off then this time may need to be longer.

SI-Cards 5/6/8/9/10/11 will use all stations in the traditional 'dibbing' way. SIACs will work contactlessly with START, FINISH and CONTROL stations (assuming the station is awake), and dib at other stations.

The table below provides information on the different stations you will use for an event using mixed punching.

Use	Comments
Clear	Recommended to be programmed with code 1 . This will suppress the SIAC feedback beeps/flashes meaning the SIAC can be dibbed in a CHECK box straight away to activate contactless punching. If an alternative code is used for the CLEAR station there is the possibility that the runner will dib in the CHECK station while the SIAC is still beeping/flashing. This will not register and contactless punching will not be activated for the SIAC. If a clear station is used for punch registration it could have a different code. This will make safety checks easier to follow.
Check	Contactless punching will be activated when a Cleared SIAC is dibbed in a CHECK station.
Start	Program as Beacon Start if it is to be a contactless start, otherwise as a Start.
Finish	Program as Beacon Finish if it is to be a contactless finish, otherwise as a Finish. Either will switch off contactless mode for a SIAC
Controls	Program as Beacon Control .
Battery Test	A station programmed in this new operating mode can be used to check the SIAC battery. When a SIAC is dibbed in the station there are three possibilities: <ul style="list-style-type: none">• The Station beeps and 'OK' is displayed on the LCD screen – SIAC has sufficient voltage• The Station gives 5 beeps – the battery has limited life but should last for the current event unless a lot of data is being collected from the chip for live timing• The Station doesn't beep and LCD displays 'LOW' – SIAC has insufficient voltage to be used contactlessly but can be used as a traditional SI-Card 10 until the owner is able to send it back to SPORTident UK for the battery to be replaced



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SIAC Test	Used to test that a SIAC is in contactless mode, and if it isn't then contactless mode will be turned on. Dib any SI-Card or SIAC to turn the station on. As a SIAC is brought close to the station the SIAC will beep/flash if it is in contactless mode, otherwise dib the card and contactless mode will be activated. No data is recorded on the SIAC and nothing will happen if a traditional SI-Card is dibbed in the station.
SIAC Off	Will turn contactless punching off. This station could be located at download so that anyone who retires can turn off contactless punching to save power (otherwise their SIAC will stay active for around 20 hours). Anyone who has completed their course will not need to use this station as their SIAC will have been switched off when they registered at the FINISH.

There are two additional operating modes available in Config+. You are unlikely to use these, but for information:

Use	Comments
SIAC On	Will turn contactless punching on, whether or not the SIAC is cleared. We suggest you usually use the CHECK station to activate contactless punching
SIAC Radio Readout	Used to tell the SIAC to send all its punch data to a SRR Dongle attached to a computer. This is another way of downloading data, but you will normally use a Master Station instead.

At the Event

Have a BATTERY TEST station available for orienteers who own their own SIACs to use prior to their run – if the station doesn't beep it means the SIAC has insufficient power to work contactlessly. This station could be located at registration and any hire SIACs should also be checked before they are handed out. Remember, even if the battery in the SIAC is low it can still be used as a traditional SI-Card until it can be sent back to SPORTident UK for a battery replacement.

Putting out Controls

- If you have multiple stations at a Checkpoint ensure they are at least 70cm apart to prevent the stations from interfering with each other. As a single station can register many SIACs at the same time, you will only need multiple Control stations where you expect lots of people to be using traditional SI-Cards
- If possible, wake the CONTROL stations up prior to the start of the event by running round and punching all of them. This means that if the first runner is using a SIAC they can use the stations contactlessly.



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Setting up the Start

- Remember that the CHECK station is needed to activate contactless punching and therefore, as ever, it's important to do the CLEAR and CHECK process
- Runners must not try registering at the START station while their SIAC is still beeping/flashing from the CHECK station as their start will not be recorded. So, for local events make sure there is a gap between the CHECK station and START station
- We suggest that during the start process you have a SIAC TEST station. All runners with SIAC should bring their card towards to the station as a final test that contactless mode has been activated. Should the card not beep/flash when it is close to the station then it should be dibbed which will activate contactless punching. Nothing will happen if a traditional SI-Card is dibbed in the station so marshals will need to be aware of this if someone using a traditional SI-Card asks
- If this is the first event that someone has used a SIAC at, the SIAC TEST station will show them what to expect when out on the course
- We recommend that the START is in punching mode as this removes the possibility of a runner receiving an incorrect start time by getting too close to the station. If the start is to be contactless then care needs to be taken to ensure that no one can get within 50cm of the START stations before they start – this includes a spare START station if it has been turned on.

Setting up the Finish

- As with events using traditional punching, it is best practice to have two FINISH stations. Ensure that they are located at least 70cm apart so they do not interfere with each other
- If you need to prove that everyone is off the area, even if they haven't downloaded (for instance if the car park is between the Finish and Download, or if the area is particularly dangerous) then you will need a 'Post-Finish' control programmed in the traditional non-beacon mode with a control code that is not on any courses. Add this to the Control Master table in SiTiming and tick Suppress to stop it being printed on splits. It should not be added to any course. The finish marshal will need to ensure everyone punches this 'Post-Finish' control after they finish. You will then be able to read this into SiTiming as safety data. The alternative is to have the FINISH stations in traditional punching mode but then you need to be very careful that everyone punches rather than assuming the finish is in beacon mode.
To ensure that the SIAC has stopped flashing from the FINISH before it can be dibbed in the Post-Finish station, these must be at least 10m apart.

At Download

- Have a SIAC OFF station at download so that anyone who retires can turn off contactless punching to save battery. Anyone who has completed their course will not need to use this station as their SIAC will have been switched off when they registered at the FINISH



- There is a neat option for ensuring that all the hire SIACs are switched off before you leave the venue. At the end of the event you can bring a Finish Beacon to the box of SIACs and any that are still on will flash and turn themselves off.

After the Event

- Stations in Beacon mode (so START, CONTROLS, FINISH) use slightly more power than when they are in passive mode, so when they are collected in **PLEASE SAVE THE BATTERIES BY TURNING THE STATIONS OFF** with a Service Off key (the LCD screen will turn off). Stations should be turned off before they are packed away after the event.

Micro-Sprint Events with leg times under 3 seconds (or 7 seconds for a SI-Card 11)

As a default, the SIAC will beep and flash for 3 seconds after registering a station, and a SI-Card 11 will flash for 7 seconds. During this time the cards will not register at another station. If your event has legs with expected fastest times quicker than this then you should give competitors the opportunity to reduce the feedback provided by their SIAC or SI-Card 11.

Have a computer with Masterstation connected at registration. In Config+ select Direct (rather than Remote) and Config SI-Cards. Edit the feedback signal to Short. At the end of the race change the feedback signal to Default.

On the following page is a sign you might like to print out and display at the event to let competitors know they can use their SIAC contactlessly at the race.



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Version: May 2018

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Contactless Punching

This event is using Mixed Punching which means that you can use your SIAC for contactless punching. We also have SIACs for hire if you would like to try them out.

If this is your first time using a SIAC there are a few things to remember:

- Wear your SIAC on your finger as you would a traditional SI-Card. If you have a GPS watch have it on your other wrist.
- The SIAC needs to be switched on to work contactlessly – this is done by dibbing the SIAC in the CHECK box once you have CLEARED it. When the SIAC is in contactless mode you will see its ‘heartbeat’ - a faint green flash at the tip every 10 seconds or so.
- At a control you will move your SIAC towards the station. The SIAC will produce shrill beeps and bright red flashes when it has recorded the visit and the timestamp. This will happen when the SIAC is within 50cm of the beacon station. If the SIAC has not started beeping or flashing as you get closer to the control station, dib it into the hole in the station in the traditional way.
- Registering at the FINISH station will turn your SIAC off. So it’s important not to run near the finish until you have finished!
- After your run go to download as normal.

Don’t worry, you can still use your traditional SI-Card and ‘dib’ in the normal way, but why not hire a SIAC and try contactless punching?

